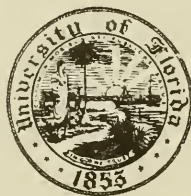


ANNUAL REPORT OF THE  
GOVERNOR OF THE  
PANAMA CANAL, 1944

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ANNUAL REPORT  
OF THE  
GOVERNOR OF  
THE PANAMA CANAL

FOR THE  
FISCAL YEAR  
ENDED JUNE 30  
1944



UNITED STATES  
GOVERNMENT PRINTING OFFICE  
WASHINGTON : 1946

204

8187

1993/44



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## REPORTS OF HEADS OF DEPARTMENTS AND DIVISIONS

### APPENDIXES NOT PRINTED

The material in the annual report of the Governor of The Panama Canal, published in this volume, is to a large extent a summary of the data presented in the annual reports from the heads of departments and divisions in the Canal organization; the latter, regarded as appendixes to the report of the Governor, are not printed. The annual reports of the Panama Railroad Co. and the health department are published separately; the latter is compiled for calendar years only. The reports of the heads of departments and divisions, as listed below, are on file at the Washington Office of The Panama Canal and at the office of the Governor at Balboa Heights, C. Z.:

Engineer of maintenance, report of:

Dredging division, report of superintendent.

Plans section, report of chief.

Safety section, report of safety engineer.

Special engineering division, report of supervising engineer.

Assistant engineer of maintenance, report of:

Civilian Defense Corps, report of director.

Electrical division, report of electrical engineer.

Locks division, report of superintendent.

Meteorology and hydrography, section of, report of chief hydrographer.

Municipal engineering division, report of acting municipal engineer.

Office engineering division, report of office engineer.

Accounting department, report of comptroller.

Marine division, report of marine superintendent.

Mechanical division, report of superintendent.

Supply department, report of chief quartermaster.

Executive department:

Civil affairs, division of, report of chief.

Clubhouses, Panama Canal, report of director.

General counsel, report of.

License bureau, report of chief.

Personnel supervision and management, division of, report of acting director of personnel.

Police and fire division, report of chief.

Real-estate section, report of chief.

Schools, division of, report of superintendent.

Surveying officer, report of.

Aeronautics section, report of chief.

Collector (acting), report of.

Magistrates' courts:

Magistrate, Cristobal, report of.


Magistrate, Balboa, report of.

Pardon board, report of chairman.

Paymaster, report of.

Public defender, report of.

Washington Office, report of chief of office and general purchasing officer.



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ANNUAL REPORT  
OF THE  
GOVERNOR OF THE PANAMA CANAL

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BALBOA HEIGHTS, CANAL ZONE,  
*October 9, 1944.*

THE SECRETARY OF WAR,  
*Washington, D. C.*

SIR: I have the honor to submit the report of the Governor of The Panama Canal for the fiscal year ended June 30, 1944.

The large program of defense construction initiated several years ago neared completion during the past year, with a consequent gradual decrease in the demands on The Panama Canal organization resulting from those construction activities. On the other hand, there has been a sharp increase in the use of the Canal and its facilities by vessels operated by the United States Government in the prosecution of the war. As a consequence, it has become necessary to make available on a greatly enlarged scale all types of services to transiting ships, including hull and machinery repairs and the supplying of oil, water, provisions, and ship chandlery. It is expected that the number of such vessels will increase still further in the future, and that the general level of Canal war activities will continue high until after the cessation of hostilities in the Asiatic theater.

The preponderance of tolls-free vessels over tolls-paying continued as during the preceding year, with a similar unfavorable ratio of revenue to operating expenses.

For the past 2 years it has been deemed advisable to withhold the printing and public distribution of the annual report until after the war, because of the confidential nature of the statistical data and other information contained in the report. The same course will be followed this year, with your approval.

Effective May 16, 1944, the undersigned, having been appointed Governor of The Panama Canal by The President of the United States and having duly qualified on that date, assumed his new duties, vice Major Gen. Glen E. Edgerton, United States Army, former Governor, whose tour of duty with The Panama Canal terminated on May 15, 1944.

Respectfully,

J. C. MEHAFFEY, *Governor.*

## INTRODUCTION

Administration of the affairs of The Panama Canal enterprises involves three main elements: (a) Operation and maintenance of the Canal itself; (b) operation of the auxiliary enterprises necessary to provide adequately for the needs of shipping and of the Canal operating forces; and (c) government of the Canal Zone, populated by American civilians, native or tropical workers and their families, and United States Army and Navy defense forces.

In addition to these normal elements, during the past 5 years the Canal organization has performed very important functions as a supply and service agency for the greatly expanded activities of the Army and Navy, particularly in their extensive construction program. While the Canal organization and equipment were not designed for this duty and are by no means fully adequate, the services rendered are regarded as very creditable. These services have contributed materially to the efficiency and economy of the Army and Navy operations, and will continue to do so for the duration of the war.

The immediate supervision of the administration of these various activities rests with the heads of the nine major departments and divisions. Responsibility and control of the entire organization are centered in the Governor of The Panama Canal who is also the president of the Panama Railroad Co., an adjunct of the Canal enterprise, organized as a Government-owned corporation.

By Executive order of September 5, 1939, the provisions of section 13 of the Panama Canal Act, approved August 24, 1912, were invoked as an emergency measure, and since that date the Commanding General, Panama Canal Department, United States Army, has exercised final authority over the operation of the Panama Canal and all its adjuncts, appendants, and appurtenances, including control and government of the Canal Zone; and the Governor of The Panama Canal has been subject to that authority and the orders issued under it.

## OPERATION AND MAINTENANCE OF THE CANAL

The primary function of the Panama Canal is to provide and maintain a waterway by means of which vessels may make the transit from one ocean to the other, and to handle such traffic as presents itself for transit with a maximum of safety and a minimum of delay. Essentially this involves the maintenance of the waterway, the operation of the locks, and the control of traffic through the Canal. Throughout the year the Canal force maintained its high standard of expeditious service not only in the actual transiting of ships but in providing emergency repairs, fuel, supplies, and the various supplementary services incidental to shipping. There were no interruptions of ship traffic during the year.



## OPERATION OF AUXILIARY ENTERPRISES—BUSINESS OPERATIONS

Second only to the operation of the Canal is the function of supplying necessary services to shipping and the Canal operating force. These services are provided under coordinated and centralized control by the various business units of The Panama Canal and Panama Railroad Co. and include oil and coal bunkering plants; storehouses for food, ship chandlery, and other essential supplies; marine repair shops; harbor terminal facilities for passengers and for handling and transshipping cargo; a railroad line across the Isthmus; water and electric power systems; and living quarters and retail commissary stores for the operating force.

## GOVERNMENT—ADMINISTRATION

The usual functions of government, such as schools, police and fire protection, quarantine, public health, immigration service, posts, customs, aids to navigation, steamboat inspection, hydrographic and meteorological work, water supply, sewers, construction and maintenance of streets, and similar activities, which, in the United States are directed by various officers of the national, State, and municipal governments, are entrusted in the Canal Zone to the Governor, and are executed under his authority and responsibility. This centralization of all governmental activities under one head is essential to economical and efficient administration.

## SERVICES RENDERED BY THE CANAL TO SHIPPING

The principal services rendered to shipping by the Canal and its adjuncts are shown in the following table, which presents a comparison of the activities during the fiscal year 1944 with those of the 2 years immediately preceding:

	Fiscal year		
	1944	1943	1942
<b>TRAFFIC THROUGH THE PANAMA CANAL</b>			
Number of vessels transiting the Canal:			
Ocean-going commercial vessels.....	1, 562	1, 822	2, 688
Small commercial vessels.....	235	177	439
Vessels exempt from payment of tolls (see page 28).....	3, 333	2, 373	1, 516
Total transits.....	5, 130	4, 372	4, 643
Tolls levied:			
Ocean-going vessels.....	\$5, 456, 163	\$7, 356, 685	\$9, 752, 207
Small vessels.....	17, 683	12, 054	19, 906
Total tolls.....	5, 473, 846	7, 368, 739	9, 772, 113
Cargo passed through Canal, carried by:	<i>Tons</i>	<i>Tons</i>	<i>Tons</i>
Ocean-going commercial vessels.....	7, 003, 487	10, 599, 966	13, 607, 444
Small commercial vessels.....	17, 156	11, 059	12, 999
Vessels exempt from payment of tolls.....	4, 572, 034	419, 080	566, 637
Total cargo.....	11, 592, 677	11, 030, 105	14, 187, 080

	Fiscal year		
	1944	1943	1942
TRAFFIC THROUGH THE PANAMA CANAL—continued			
Net tonnage (Panama Canal measurement) of ocean-going commercial vessels.....	6, 073, 457	8, 233, 999	11, 010, 004
Cargo per Panama Canal net vessel ton (laden ocean-going commercial vessels only).....	1, 389	1, 435	1, 381
Average tolls per ton of cargo (laden ocean-going commercial vessels only).....	\$0. 648	\$0. 633	\$0. 645
OTHER SERVICES			
Calls at Canal Zone ports by ships not transiting the Canal.....	813	483	948
Cargo handled and transferred at ports (tons).....	1, 734, 556	2, 018, 377	2, 508, 421
Coal sales to ships (tons).....	58, 583	75, 491	123, 502
Coal, number of vessels bunkered.....	213	294	305
Fuel oil—total barrels pumped (both incoming and outgoing) excluding Panama Canal use.....	23, 688, 710	20, 546, 768	11, 620, 913
Fuel oil—number of vessels handled.....	2, 431	3, 057	2, 596
Repairs to ships other than Panama Canal equipment:			
Number of vessels repaired.....	3, 514	2, 318	1, 023
Number of vessels drydocked.....	418	332	185
Sales to ships (except U. S. Army and Navy):			
Provisions (commissary sales).....	\$1, 596, 608	\$737, 061	\$543, 996
Chandlery (storehouse sales).....	337, 577	101, 843	77, 325

## NET REVENUES

During the fiscal year the revenue from tolls charged to commercial shipping using the Canal was \$5,473,846.30 and civil revenues plus the postal surplus amounted to \$239,393.31. The net appropriation expenses were \$12,634,164.42, resulting in a net deficit from Canal operations proper of \$6,920,924.81. The business operations under The Panama Canal produced a net revenue of \$1,553,294.06. The combined net deficit resulting from the operation of the Canal and its business units during the fiscal year 1944 was thus \$5,367,630.75 as compared to a net deficit of \$2,396,497.05 in the fiscal year 1943.

## REPLACEMENTS

The past fiscal year marked the close of 30 years of successful operation of the Panama Canal. A very important factor contributing to this creditable record is the care that has been taken to maintain all parts of the Canal structures and equipment in good operating condition.

Of the total capital value of The Panama Canal, approximately \$100,000,000 is the value of property of the transit divisions (which is subject to deterioration). Some of this property, including locks, dams, and other concrete structures, is still in excellent condition and requires but little expenditure for upkeep. However, other types of property, subject to more rapid deterioration, require systematic and orderly replacement as their economic life is exhausted, and appropriations must be made by Congress for this purpose, as well as for the construction of new facilities as the need therefor develops.

## SECTION I

### CANAL OPERATION AND TRADE VIA THE PANAMA CANAL STATISTICS ON CANAL TRAFFIC

Total transits of the Canal in the fiscal year 1944, including tolls-paying commercial vessels and vessels transiting free of tolls numbered 5,130 in comparison with 4,372 in the preceding fiscal year, an increase of 758 transits, or about 17 percent. The following table gives a segregation of this traffic for the past three fiscal years:

[Number of transits]

	Fiscal year		
	1944	1943	1942
Commercial (tolls-paying) transits:			
Ocean-going of 300 net tons (Panama Canal measurement) and over.....	1, 562	1, 822	2, 688
Local traffic, under 300 net tons (Panama Canal measurement) .....	235	177	439
Noncommercial (tolls-free) transits.....	3, 333	2, 373	1, 516
Total transits.....	5, 130	4, 372	4, 643

As will be noted above, the increase in Canal traffic in comparison with the preceding year resulted from the increased use of the Canal by vessels transiting free of tolls. This type of traffic is made up in the main of combat and auxiliary vessels owned by the United States Government, as well as cargo-carrying vessels operated by the United States Government for the transportation of war cargoes. The increased use of the Canal by tolls-free traffic is, of course, a war development, and transits in this category in 1944 accounted for 65 percent of the total traffic. In 1939, which may be considered the last normal year in Canal traffic, free traffic comprised less than 9 percent of the total traffic through the Canal. The tolls which would have been collected from these tolls-free vessels if they had been assessed at the regular commercial rates would have amounted to approximately \$5,876,729. Further data on vessels transiting free of tolls will be found on page 28 of this report.

The Panama Canal has never compiled detailed statistics on the cargo or routing of noncommercial vessels (i. e., vessels transiting the Canal free of tolls) nor have these been included in the general statistics, which are confined to commercial (tolls-paying) traffic. In normal times noncommercial traffic consists largely of warships, which do not carry cargo, and supply vessels of the United States Army and Navy, which carry only a relatively small amount of cargo. At the

present time a great number of cargo vessels are carrying supplies for the Army and Navy as a direct part of the war effort. As these vessels are exempt from the payment of tolls they are not included in the traffic statistics, although they now comprise an important amount of cargo carried through the Canal.

The following data show the total amount of cargo carried through the Canal since the fiscal year 1939, segregated between that carried by commercial and by noncommercial vessels:

Fiscal year	Total	Commercial (tolls-paying)		Noncommercial
		Ocean-going	Local <sup>1</sup>	
	<i>Tons</i>	<i>Tons</i>	<i>Tons</i>	<i>Tons</i>
1939.....	27, 993, 143	27, 866, 627	31, 251	95, 265
1940.....	27, 523, 727	27, 299, 016	25, 818	198, 893
1941.....	25, 198, 599	24, 950, 791	24, 881	222, 927
1942.....	14, 187, 080	13, 607, 444	12, 999	566, 637
1943.....	11, 030, 105	10, 599, 966	11, 059	419, 080
1944.....	11, 592, 677	7, 003, 487	17, 156	4, 572, 034

<sup>1</sup> Vessels under 300 net tons, Panama Canal measurement.

Except for the sections on pages 28 and 29, the following discussion of traffic through the Panama Canal in fiscal year 1944 deals only with ocean-going commercial tolls-paying traffic:

#### TEMPORARY CHANGE IN BASIS FOR COMPILATION OF SHIPPING STATISTICS

At the start of the current fiscal year (July 1, 1943) The Panama Canal discontinued the use of its standard cargo declaration form for the duration of the war. Prior to that date the origin and destination of all important items of cargo had been shown on this form by the masters of all commercial vessels transiting the Canal. For vessels traveling over long routes the origin or destination of the cargo was frequently different from the ultimate origin or destination of the voyage.

In lieu of the cargo declaration form, ships' masters now are required to furnish only general statistics as to the important commodities on board at the time of transiting the Canal. The Panama Canal receives independently special reports from the United States Navy showing the ports of origin and destination of commercial vessels transiting the Canal. These two sets of data are consolidated to prepare statistics on trade routes and commodities.

An example of the difference between the standard procedure and the one adopted for the duration of the war is the case of vessels coming from the West Coast of North America. Vessels from this area often pick up important parts of their cargo in both Canada and the United States, and under The Panama Canal's standard procedure this distinction was shown. Under the present procedure, however, all cargo



in one ship is consolidated into one trade route, and no attempt is made to distinguish between cargo originating in the United States and in Canada.

The present temporary procedure is not as accurate or complete as the standard peace-time procedure, but it is considered adequate for the war period, since the commercial shipping now transiting the Canal is entirely subject to war conditions, both as to routing and as to commodities carried, and so is not comparable with commercial shipping in normal times.

*Ocean-going commercial (tolls-paying) traffic.*<sup>1</sup>—A total of 1,562 ocean-going tolls-paying vessels transited the Canal in 1944, which was a decrease of 260 transits, or 14 percent, from the 1,822 transiting in the preceding fiscal year. The total of 1,562 transits in this category for 1944 may be considered an all-time low for any full fiscal year of operation since the Canal was opened to traffic; the fiscal years 1915 and 1916 actually had fewer transits than 1944, but the Canal was only in operation 10½ months in 1915 (having been opened to traffic August 15, 1914), and was closed for approximately 7 months in 1916 on account of slides. The following figures show the principal features of ocean-going commercial traffic through the Canal in the past three fiscal years:

	Fiscal year		
	1944	1943	1942
Number of transits.....	1,562	1,822	2,688
Net tonnage (Panama Canal measurement).....	6,073,457	8,233,999	11,010,004
Cargo carried (long tons of 2,240 pounds).....	7,003,487	10,599,966	13,607,444
Tolls.....	\$5,456,163	\$7,356,685	\$9,752,207

In the fiscal year 1939, which immediately preceded the outbreak of hostilities in Europe, ocean-going commercial tolls-paying transits numbered 5,903, falling but little short of equaling the peak years of 1928 through 1930, when transits averaged 6,190 per year. The outbreak of war in Europe early in the fiscal year 1940 had an immediate adverse effect on traffic, particularly in the normally important Europe/North America and Europe/South America trades. Traffic over the other main channels of trade continued for some time at about prewar levels, but beginning with January 1941 (which approximately coincided with the discontinuance of heavy shipments to Japan) traffic declined sharply and at the time of the entry of the United States into the war in December 1941 was about two-thirds of normal. The entry of the United States into the war brought about a further decline, resulting chiefly from the virtual disappearance

<sup>1</sup> Includes all tolls-paying vessels having a measurement of 300 or more net tons (Panama Canal measurement) or 500 or more displacement tons.

from the Canal of vessels engaged in the important United States intercoastal trade.

The combined cargo movement in both directions in 1944 amounted to 7,003,487 tons, or a decrease of 3,596,479 tons (33.9 percent) from that in 1943. The Atlantic-to-Pacific movement declined from 4,945,267 tons in 1943 to 3,354,349 tons in 1944 (32.2 percent), while the Pacific-to-Atlantic movement declined from 5,654,699 tons in 1943 to 3,649,138 tons in 1944 (35.5 percent).

The principal cause of the decrease in traffic moving via the Canal in 1944 in comparison with the preceding year was the decrease in the number of vessels transporting cargoes between the east coast of North America and Asia (India and the Persian Gulf area) and between the east coast of North America and the east coast of Africa (principally the Suez Canal area). Total cargo shipped to and from these areas via the Canal in 1944 was less than one-fourth the 3½ million tons shipped in 1943. As stated in the report for 1943, the extensive use of the long route via the Panama Canal and the Pacific for shipments of materials between the east coast North America and the India/Persian Gulf area and Africa was probably influenced by safety considerations since shorter routes for this trade are via the Mediterranean Sea or the Cape of Good Hope. Another route presumably used for safety reasons in 1943 was that between Europe/east coast North America and the east coast of South America, via the Strait of Magellan. This route was also used to some extent in 1944 when a total of 151,407 tons was shipped, as against 367,226 tons in the preceding year.

Trade between the east coast United States and the west coast of South America accounted for the largest tonnage over any single trade route in 1944, a total of 1,842,339 tons having been exchanged between these two areas during that period. This represents an increase of 311,600 tons, or 20 percent, over the preceding year. The Atlantic-to-Pacific movement in this trade, totaling 515,190 tons, more than doubled the shipments of 1943 and constituted the main factor in the over-all increase in this trade. The movement in the opposite direction, totaling 1,327,149 tons, was up 1.8 percent over the preceding year.

Shipments via the Canal between Europe and Australasia continued to form an important element in Canal traffic, although the shipments in both directions in 1944, amounting to 1,202,300 tons, were about 19 percent under those in the preceding year. There was a sharp increase in cargo shipped between the east coast North America and Australasia because of the heavy shipments from the Atlantic to the Pacific, which totaled 1,221,119 tons in 1944, almost quadrupling the 313,825 tons in 1943; tonnage moving from the Pacific to the Atlantic

in this trade was considerably lower, however, totaling but 99,540 tons as compared with 239,484 tons in 1943.

Cargo moving from the west coast United States/Canada to Europe accounted for 342,681 tons in 1944, which represents a decrease of about 61 percent from the 882,367 tons in the preceding year. Practically all of this cargo was transported by British vessels built on the west coast of North America and sailing on their maiden voyages to the United Kingdom.

Further details of individual trade routes and commodities are presented on pages 11 through 20 of this report.

The receipts from tolls as reported to the United States Treasury for the fiscal year 1944 were \$5,473,846.30. This figure includes tolls on local tolls-paying vessels amounting to \$17,682.98 which are not included in the Canal statistics covering ocean-going commercial (tolls-paying) traffic. This item, therefore, accounts for the difference between the tolls receipts reported to the Treasury and the figure for tolls levied on ocean-going commercial traffic as reported in the following studies of traffic which are based on tolls levied at the time of transit.

#### CANAL TRAFFIC BY FISCAL YEARS 1915 TO 1944

Comparative traffic statistics covering ocean-going vessels for each fiscal year since the Canal was opened to navigation are shown in the following table:

Fiscal year ended June 30—	Number of transits	Panama Canal net tonnage <sup>1</sup>	Tolls	Tons of cargo
1915 <sup>2</sup>	1,058	3,507,000	\$4,366,747.13	4,888,400
1916 <sup>3</sup>	724	2,212,000	2,403,089.40	3,093,335
1917	1,738	5,357,000	5,620,799.83	7,054,720
1918	1,989	6,072,000	6,428,780.26	7,525,768
1919	1,948	5,658,000	6,164,290.79	6,910,097
1920	2,393	7,898,000	8,507,938.68	9,372,374
1921	2,791	10,550,000	11,268,681.46	11,595,971
1922	2,665	10,556,000	11,191,828.56	10,882,607
1923	3,908	17,206,000	17,504,027.19	19,566,429
1924	5,158	24,181,000	24,284,659.92	26,993,167
1925	4,592	21,134,000	21,393,718.01	23,956,549
1926	5,087	22,906,000	22,919,931.89	26,030,016
1927	5,293	24,245,000	24,212,250.61	27,733,555
1928	6,253	27,229,000	26,922,200.75	29,615,651
1929	6,289	27,585,000	27,111,125.47	30,647,768
1930	6,027	27,716,000	27,059,998.94	30,018,429
1931	5,370	25,690,000	24,624,599.76	25,065,283
1932	4,362	21,842,000	20,694,704.61	19,798,986
1933	4,162	21,094,000	19,601,077.17	18,161,165
1934	5,234	26,410,000	24,047,183.44	24,704,009
1935	5,180	25,720,000	23,307,062.93	25,309,527
1936	5,382	25,923,000	23,479,114.21	26,505,943
1937	5,387	25,430,000	23,102,137.12	28,108,375
1938	5,524	25,950,383	23,169,888.70	27,385,924
1939	5,903	27,170,007	23,661,021.08	27,866,627
1940	5,370	24,144,366	21,144,675.36	27,299,016
1941	4,727	20,642,736	18,157,739.68	24,950,791
1942	2,688	11,010,004	9,752,207.38	13,607,444
1943	1,822	8,233,999	7,356,684.94	10,599,966
1944	1,562	6,073,457	6,456,163.32	7,003,487
Total	120,586	539,345,952	514,914,328.59	582,251,379

<sup>1</sup> Panama Canal net tonnages prior to 1939 are estimated figures based on revised measurement rules which became effective Mar. 1, 1938. <sup>2</sup> Canal opened to traffic Aug. 15, 1914.

<sup>3</sup> Canal closed to traffic approximately 7 months of fiscal year by slides.

## TRAFFIC BY MONTHS—FISCAL YEARS 1944 AND 1943

The ocean-going commercial traffic during each month of the fiscal year 1944 is summarized in the following table in which are inserted for comparison the corresponding figures for the preceding year:

	Number of transits		Panama Canal net tonnage		Tons of cargo		Tolls	
	1943-44	1942-43	1943-44	1942-43	1943-44	1942-43	1943-44	1942-43
July.....	131	129	553,901	528,236	580,644	645,385	\$487,843.56	\$463,097.60
August.....	162	113	668,309	460,666	781,764	567,302	613,079.14	411,701.80
September.....	122	120	479,535	591,941	557,651	721,421	438,141.76	525,664.44
October.....	120	162	433,307	757,410	536,964	1,005,486	391,543.52	673,820.78
November.....	139	146	524,975	599,273	673,023	846,889	466,229.60	536,734.14
December.....	102	168	339,018	761,032	350,208	1,021,333	310,272.56	685,880.40
January.....	129	151	489,454	733,660	564,602	962,567	438,784.24	654,032.52
February.....	143	150	524,289	710,943	585,994	944,635	461,868.58	650,633.26
March.....	144	125	499,661	582,891	575,279	767,679	451,497.84	524,161.96
April.....	140	183	608,747	805,835	775,593	1,080,943	542,748.12	720,445.60
May.....	108	179	436,127	853,676	464,958	1,067,577	395,178.70	760,599.78
June.....	122	196	516,134	848,436	556,807	968,749	458,975.70	749,912.66
Total.....	1,562	1,822	6,073,457	8,233,999	7,003,487	10,599,966	5,456,163.32	7,356,684.94
Average per month.....	130	152	506,121	686,167	583,624	883,331	454,680.27	613,057.07

## NATIONALITY OF VESSELS TRANSITING CANAL

Segregation of the ocean-going commercial traffic<sup>1</sup> through the Canal during the fiscal year 1944, by nationality, is presented in the following table, which shows transits, measurement tonnage, tolls and tons of cargo:

*Ocean-going commercial traffic<sup>1</sup> through the Panama Canal during the fiscal year 1944, by nationality of vessels*

Nationality	Number of transits	Measured tonnage			Tolls	Tons of cargo
		Panama Canal net	Registered			
			Gross	Net		
Argentine.....	1	3,461	4,940	2,816	\$3,114.90	5,900
Brazilian.....	2	3,224	4,635	3,085	2,901.60	3,950
British.....	478	2,295,985	3,089,304	1,871,554	2,205,346.88	2,406,886
Chilean.....	74	190,174	242,257	149,099	170,938.62	289,170
Danish.....	2	14,534	19,646	12,470	13,080.60	21,033
Free French.....	1	(2)	(2)	(2)	370.00	-----
Honduran.....	37	49,032	84,009	48,098	40,094.10	36,344
Mexican.....	5	8,500	12,577	7,749	8,375.00	16,905
Netherland.....	301	290,686	310,161	165,729	253,368.00	268,595
Norwegian.....	70	347,411	420,175	249,626	294,314.94	342,937
Panamanian.....	71	128,121	184,399	110,824	108,479.16	142,178
Peruvian.....	5	8,900	12,645	7,237	8,010.00	10,831
Polish.....	1	5,117	7,001	5,121	4,605.30	7,782
Soviet.....	10	30,342	41,938	25,880	27,307.80	50,336
United States.....	485	2,654,456	3,554,244	2,167,031	2,278,908.18	3,352,866
Uruguayan.....	5	18,910	19,061	11,595	17,019.00	25,625
Venezuelan.....	14	24,604	41,124	24,488	19,929.24	22,149
Totals:						
1944.....	1,562	6,073,457	8,048,116	4,862,402	5,456,163.32	7,003,487
1943.....	1,822	8,233,999	10,873,750	6,578,130	7,356,684.94	10,599,966
1942.....	2,688	11,010,004	14,759,299	8,742,192	9,752,207.38	13,607,444

<sup>1</sup> Ocean-going commercial traffic includes only toll-paying vessels of 300 or more net tons, Panama Canal measurement, or 500 or more displacement tons. <sup>2</sup> Displacement tonnage.



## VESSELS PAYING TOLLS ON DISPLACEMENT TONNAGE

In the Canal traffic statistics, foreign naval vessels such as transports, supply ships, tankers, etc., with a measurement of 300 net tons (Panama Canal measurement) or more, and vessels of war, dredges, etc., with a displacement of 500 tons or more, are classified as ocean-going commercial tolls-paying vessels. Statistics on these vessels, except as relate to displacement tonnage, have been included in the traffic summaries shown on the preceding pages. Displacement tonnage cannot be combined with net tonnage, and the following table presents by nationality statistics covering 58 vessels of war which transited the Canal during the fiscal year 1944 and paid tolls on displacement tonnage:

Nationality	Number of transits	Displace- ment tonnage	Tolls
British.....	56	347,485	\$173,742.50
Free French.....	1	740	370.00
Mexican.....	1	1,450	725.00
Total.....	58	349,675	174,837.50

## CARGO SHIPMENTS BY TRADE ROUTES

The following tables present, by direction of movement, cargo tonnage passing through the Canal over various trade routes, together with the principal commodities making up these shipments, for the past three fiscal years. In using these tables it is important to bear in mind that these data include only cargo carried by commercial vessels, and that during the fiscal year 1944, 40 percent of the cargo passing through the Canal was carried by tolls-free vessels and accordingly is not included in these statistics. It should also be noted that data on the origin and destination of cargo for the fiscal year 1944 are not strictly comparable with those for prior years, as explained on page 7 of this report.

## TOTAL CARGO SHIPMENTS—ATLANTIC TO PACIFIC

(Tons of 2,240 pounds)

	Fiscal year		
	1944	1943	1942
East coast United States to—			
West coast United States .....	704		949, 610
West coast Central America .....	16, 215	6, 563	37, 134
West coast South America .....	515, 190	226, 184	542, 328
East coast South America (via Strait of Magellan) .....	51, 394	54, 284	
Hawaiian Islands .....	9, 493		108, 852
Australasia .....	903, 626	259, 290	534, 449
Africa .....	81, 353	883, 976	
Philippine Islands .....			123, 173
Asia .....	216, 923	1, 493, 388	490, 654
Balboa, C. Z. ....	8, 531	47, 784	138, 810
High seas (destination unknown) .....		670, 580	
Other territories .....	4, 194		
Total from east coast United States .....	1, 807, 623	3, 642, 049	2, 925, 010
East coast Canada to—			
Australasia .....	17, 283	33, 047	124, 518
Asia .....		38, 347	3, 697
Other territories .....		24, 394	7, 440
Total from east coast Canada .....	17, 283	95, 788	135, 655
From east coast Central America/Mexico, total .....	3, 584	4, 098	26, 303
East coast South America to—			
West coast United States .....			125, 796
Other territories .....	35, 117	10, 810	45, 980
Total from east coast South America .....	35, 117	10, 810	171, 776
Cristobal, C. Z., to—			
West coast Central America .....	13, 482	8, 842	51, 801
West coast South America .....	13, 293	6, 608	83, 376
Other territories .....	4, 501	31, 039	12, 575
Total from Cristobal .....	31, 276	46, 489	147, 752
West Indies to—			
West coast South America .....	16, 235	11, 897	131, 329
West coast Central America .....	59, 901	16, 324	78, 120
Balboa, C. Z. ....	713, 684	459, 083	197, 566
Australasia .....	300, 210	21, 488	188, 530
Africa .....	100, 589	135, 254	
High seas (destination unknown) .....		86, 004	66, 197
Other territories .....	39, 741	15, 925	25, 515
Total from West Indies .....	1, 230, 360	745, 975	687, 257
Europe to—			
Australasia .....	203, 370	316, 548	361, 310
West coast South America .....	25, 736	42, 834	49, 305
Asia .....		26, 188	143, 449
All other territories .....		14, 488	23, 309
Total from Europe .....	229, 106	400, 058	577, 373
From Asia, total .....			13, 796
Total cargo, Atlantic to Pacific .....	3, 354, 349	4, 945, 267	4, 684, 922

## TOTAL CARGO SHIPMENTS—PACIFIC TO ATLANTIC

[Tons of 2,240 pounds]

	Fiscal year		
	1944	1943	1942
West coast United States/Canada to—			
East coast United States.....	67, 410	17, 103	1, 018, 377
Cristobal, Canal Zone.....		142, 287	22, 354
West Indies.....	31, 157	86, 448	76, 831
Europe.....	342, 681	882, 367	541, 046
East coast South America.....	2, 450		78, 028
Egypt.....			21, 013
Africa (other than Egypt).....	15, 726		35, 987
Asia.....			48, 307
High seas (destination unknown).....		20, 169	
Other territories.....			17, 297
Total from west coast North America.....	459, 424	1, 148, 374	1, 859, 240
West coast Central America/Mexico to—			
United States.....	10, 198	7, 366	54, 210
Other territories.....	27, 683	7, 962	25, 451
Total from west coast Central America/Mexico.....	37, 881	15, 328	79, 661
West coast South America to—			
East coast United States.....	1, 327, 149	1, 304, 555	2, 652, 242
Cristobal, C. Z.....	69, 411	67, 239	90, 772
West Indies.....	36, 288	64, 692	115, 040
Europe.....	71, 331	93, 226	221, 554
High seas (destination unknown).....		62, 521	
Other territories.....	14, 570	10, 255	52, 634
Total from west coast South America.....	1, 518, 749	1, 602, 488	3, 132, 242
From Balboa, C. Z., total.....	8, 809	3	7, 825
Hawaiian Islands to east coast United States.....	11, 189	93, 428	222, 258
(No other cargo shipments from Hawaiian Islands.).....			
Australasia to—			
East coast United States.....	91, 546	230, 018	392, 668
East coast Canada.....		9, 128	98, 467
Europe.....	998, 930	1, 163, 244	1, 403, 106
Other territories.....	936	1, 427	4, 253
Total from Australasia.....	1, 091, 412	1, 403, 817	1, 898, 494
Philippine Islands to—			
East coast United States.....			404, 754
Other territories.....			6, 226
Total from Philippine Islands.....			410, 980
Asia to—			
East coast United States.....	393, 237	671, 665	896, 426
Europe.....		99, 735	395, 221
Other territories.....		11, 480	20, 175
Total from Asia.....	393, 237	782, 880	1, 311, 822
East coast South America (via Strait of Magellan) to—			
East coast United States.....	95, 852	176, 738	
Europe.....	4, 161	119, 228	
Other territories.....		10, 542	
Total from east coast South America.....	100, 013	306, 508	
Africa to—			
East coast United States.....		237, 956	
Europe.....		33, 224	
Other territories.....		10, 078	
Total from Africa.....		281, 258	
High seas to—			
High seas.....	26, 392	20, 615	
Other territories.....	2, 032		
Total from high seas.....	28, 424	20, 615	
Grand total, Pacific to Atlantic.....	3, 649, 138	5, 654, 699	8, 922, 522

# IMPORTANT COMMODITY SHIPMENTS OVER PRINCIPAL TRADE ROUTES— ATLANTIC TO PACIFIC

[Tons of 2,240 pounds]

	Fiscal year		
	1944	1943	1942
East coast United States to west coast United States:			
Canned goods, various.....			57, 145
Iron and steel manufactures.....			316, 090
Lubricating oils and greases.....			69, 493
Paper and paper products.....			45, 587
Sulphur.....			42, 985
All other and unclassified.....	704		418, 310
Total this trade route.....	704		949, 610
East coast United States to west coast Central America. (No single outstanding commodity in this trade.)			
East coast United States to west coast South America:			
Coal.....	39, 866	36, 592	77, 592
Iron and steel manufactures.....	70, 807	32, 303	104, 703
Lubricating oil and greases.....	8, 343	12, 000	32, 796
Machinery.....	17, 042	12, 191	24, 639
Paper and paper products.....	1, 835	13, 732	21, 803
All other and unclassified.....	377, 297	119, 366	280, 795
Total this trade route.....	515, 190	226, 184	542, 328
East coast United States to east coast South America (via Magellan Strait):			
Coal.....	8, 087	14, 717	
All other and unclassified.....	43, 307	39, 567	
Total this trade route.....	51, 394	54, 284	
East coast United States to Hawaiian Islands:			
Ammonium compounds.....			14, 480
Explosives.....	4, 300		
Iron and steel manufactures.....			22, 633
All other and unclassified.....	5, 193		71, 739
Total this trade route.....	9, 493		108, 852
East coast United States to Australasia:			
Automobiles and accessories.....	22, 669	19, 226	34, 911
Iron and steel manufactures.....	17, 980	31, 703	28, 329
Machinery.....	9, 648	10, 658	13, 278
Mineral oils.....	115, 966	38, 652	163, 978
Paper and paper products.....	26, 672	7, 302	1, 679
Phosphates.....	84, 028	58	36
Sulphur.....	95, 523	21, 665	72, 359
Tinplate.....	44, 719	17, 046	84, 669
War materials, unclassified.....	52, 428	8, 737	
All other and unclassified.....	433, 993	104, 243	135, 210
Total this trade route.....	903, 626	259, 290	534, 449
East coast United States to Africa:			
Ammunition.....		52, 779	
Automobiles and accessories.....	3, 200	45, 557	
Canned goods, various.....		17, 701	
Iron and steel manufactures.....	4, 589	105, 560	
Machinery.....	2, 043	14, 214	
Mineral oils.....	3, 489	275, 565	
Ordnance, except ammunition.....		14, 513	
Railroad material.....		11, 591	
War materials, unclassified.....	7, 513	156, 090	
All other and unclassified.....	60, 519	190, 426	
Total this trade route.....	81, 353	883, 976	
East coast United States to Philippine Islands:			
Iron and steel manufactures.....			23, 705
Mineral oils.....			11, 531
All other and unclassified.....			87, 937
Total this trade route.....			123, 173

# IMPORTANT COMMODITY SHIPMENTS OVER PRINCIPAL TRADE ROUTES— ATLANTIC TO PACIFIC—Continued

[Tons of 2,240 pounds]

	Fiscal year		
	1944	1943	1942
East coast United States to Asia:			
Alcohol, technical.....	11, 591		
Ammunition.....		68, 156	
Automobiles and accessories.....	2, 401	152, 477	42, 967
Beans, edible.....		12, 288	5
Canned goods, various.....		61, 522	17, 392
Chemicals, unclassified.....		10, 534	12, 042
Cotton, raw.....			14, 197
Explosives.....		26, 300	13, 190
Flour.....		29, 538	13, 259
Government stores.....		87, 794	
Iron and steel manufactures.....		201, 361	114, 939
Machinery.....	7, 115	43, 366	12, 783
Mineral oils.....	94, 764	68, 044	48, 395
Ordnance, except ammunition.....		40, 231	
Paper and paper products.....		5, 958	44, 628
Railroad material.....		34, 556	3, 966
Tinplate.....		5, 936	17, 384
War materials, unclassified.....		420, 413	
Wheat.....		13, 026	
All other and unclassified.....	101, 052	211, 888	135, 507
Total this trade route.....	216, 923	1, 493, 388	490, 654
East coast United States to Balboa:			
Cement.....		1, 450	35, 674
Mineral oils.....	8, 531	43, 062	63, 529
All other and unclassified.....		3, 272	39, 607
Total this trade route.....	8, 531	47, 784	138, 810
East coast Canada to Australasia:			
Automobiles and accessories.....	2, 696	2, 329	36, 430
Paper.....	6, 808	5, 231	53, 323
All other and unclassified.....	7, 779	25, 487	34, 765
Total this trade route.....	17, 283	33, 047	124, 518
East coast Canada to Asia. (No single outstanding commodity in this trade.)			
East coast South America to west coast United States:			
Canned meat.....			8, 361
Coffee.....			24, 611
Fertilizers.....			26, 439
Oilseeds.....			25, 196
Vegetable oils.....			16, 335
All other and unclassified.....			24, 854
Total this trade route.....			125, 796
Cristobal to west coast Central America. (No single outstanding commodity in this trade.)			
Cristobal to west coast South America. (No single outstanding commodity in this trade.)			
West Indies to west coast South America:			
Mineral oils.....		10, 554	128, 371
All other and unclassified.....	16, 235	1, 343	2, 958
Total this trade route.....	16, 235	11, 897	131, 329
West Indies to west coast Central America:			
Mineral oils.....	58, 257	16, 324	74, 992
All other and unclassified.....	1, 644		3, 128
Total this trade route.....	59, 901	16, 324	78, 120
West Indies to Balboa, C. Z.:			
Mineral oils.....	707, 734	446, 811	197, 515
All other and unclassified.....	5, 950	12, 272	51
Total this trade route.....	713, 684	459, 083	197, 566



# IMPORTANT COMMODITY SHIPMENTS OVER PRINCIPAL TRADE ROUTES— ATLANTIC TO PACIFIC—Continued

[Tons of 2,240 pounds]

	Fiscal year		
	1944	1943	1942
West Indies to Australasia:			
Asphalt.....		21, 484	20, 128
Mineral oils.....	300, 210		168, 362
All other and unclassified.....		4	40
Total this trade route.....	300, 210	21, 488	188, 530
West Indies to Africa: Mineral oils.....	100, 589	135, 254	
(No other commodities in this trade.)			
Europe to Australasia:			
Ammunition.....		28, 127	7, 232
Chemicals, unclassified.....	4, 940	15, 806	25, 305
Explosives.....	864	9, 638	13, 988
Glass and glassware.....		3, 997	12, 832
Government stores.....		21, 106	
Iron and steel manufactures.....	7, 276	23, 191	27, 861
Machinery.....	4, 738	19, 785	39, 789
Ordnance, except ammunition.....		14, 641	2, 786
Salt.....	6, 084	27, 563	22, 961
Soda and sodium compounds.....	3, 400	27, 922	11, 052
Tinplate.....	5, 417	190	21, 515
War materials, unclassified.....	3, 807	15, 073	
All other and unclassified.....	166, 844	109, 509	175, 989
Total this trade route.....	203, 370	316, 548	361, 310
Europe to west coast South America:			
Chemicals, unclassified.....		14, 997	25, 305
All other and unclassified.....	25, 736	27, 837	24, 000
Total this trade route.....	25, 736	42, 834	49, 305
Europe to Asia:			
Cement.....		15	19, 114
Explosives.....		24	11, 492
Iron and steel manufactures.....		3, 464	16, 040
Machinery.....		11, 150	9, 021
All other and unclassified.....		11, 535	87, 782
Total this trade route.....		26, 188	143, 449

# IMPORTANT COMMODITY SHIPMENTS OVER PRINCIPAL TRADE ROUTES— PACIFIC TO ATLANTIC

[Tons of 2,240 pounds]

	Fiscal year		
	1944	1943	1942
West coast United States/Canada to east coast United States:			
Beans, edible.....	2, 245		18, 495
Canned goods, various.....	3, 334		294, 698
Flour.....			25, 855
Fruit, dried.....			49, 930
Lumber.....	7, 989		423, 448
Mineral oils.....		17, 103	60, 724
Molasses.....			14, 861
Ores.....			18, 027
Papers.....			16, 137
Woodpulp.....			10, 112
Wheat.....	49, 061		248
All other and unclassified.....	4, 781		85, 842
Total this trade route.....	67, 410	17, 103	1, 018, 377

# IMPORTANT COMMODITY SHIPMENTS OVER PRINCIPAL TRADE ROUTES— PACIFIC TO ATLANTIC—Continued

[Tons of 2,240 pounds]

	Fiscal year		
	1944	1943	1942
West coast United States/Canada to Cristobal, C. Z.:			
Mineral oils.....		129,831	9,351
All other.....		12,456	13,003
Total this trade route.....		142,287	22,354
West coast United States/Canada to West Indies:			
Canned goods, various.....		10,622	19,566
Flour.....		10,891	2,585
Lumber.....	22,221	10,703	26,146
Mineral oils.....			9,366
Rice.....		28,665	2,427
All other and unclassified.....	8,936	25,567	16,741
Total this trade route.....	31,157	86,448	76,831
West coast United States/Canada to Europe:			
Borax.....		18,339	11,879
Canned goods, various.....	25,420	22,358	94,320
Chemicals, unclassified.....	49	13,817	11,341
Cotton.....		20,429	9,753
Fruit, dried.....	1,708	3,183	32,124
Grains, other than wheat.....		10,697	1,766
Lead, metal.....	34,205	92,982	80,573
Lumber.....	200,524	435,884	141,024
Phosphates.....	12,300	13,111	
Wheat.....	4,076	60,334	13,688
Woodpulp.....	3,260	42,149	68,639
Zinc, metal.....	13,020	71,444	24,069
All other and unclassified.....	48,119	77,640	51,880
Total this trade route.....	342,681	882,367	541,046
West coast United States/Canada to east coast South America:			
Lumber.....			15,095
Metals, copper and lead.....			12,481
Woodpulp.....	1,800		11,128
All other and unclassified.....	650		39,324
Total this trade route.....	2,450		78,028
West coast United States/Canada to Egypt:			
Lumber.....			17,657
All other and unclassified.....			3,356
Total this trade route.....			21,013
West coast United States/Canada to Africa (other than Egypt):			
Lumber.....	12,882		30,993
All other and unclassified.....	2,844		4,994
Total this trade route.....	15,726		35,987
West coast United States/Canada to Asia:			
Lumber.....			31,357
All other and unclassified.....			16,950
Total this trade route.....			48,307
West coast Central America/Mexico to east coast United States:			
Bananas.....	9,546	7,366	52,844
All other and unclassified.....	652		1,366
Total this trade route.....	10,198	7,366	54,210
West coast South America to east coast United States:			
Beans, edible.....	7,768	1,149	21,724
Cocoa and cocoa beans.....	2,600	10,312	4,601
Coffee.....	80,801	90,628	32,594
Copper, metal.....	459,915	261,989	349,189
Lead, metal.....	25,920	16,764	27,468
Mineral oils.....	14,417	46,298	
Nitrate.....	416,211	607,496	592,437
Ore, iron.....		44,760	1,204,695
Ore, other than iron.....	78,650	149,319	214,002

# IMPORTANT COMMODITY SHIPMENTS OVER PRINCIPAL TRADE ROUTES— PACIFIC TO ATLANTIC—Continued

[Tons of 2,240 pounds]

	Fiscal year		
	1944	1943	1942
West coast South America to east coast United States—Con.			
Rice.....	32, 107	289	2, 149
Sugar.....		1, 541	93, 675
Wool.....	9, 131	11, 568	9, 327
All other and unclassified.....	199, 629	62, 442	100, 381
Total this trade route.....	1, 327, 149	1, 304, 555	2, 652, 242
West coast South America to Cristobal, C. Z.:			
Coffee.....	41, 737	25, 493	50, 959
All other and unclassified.....	27, 674	41, 746	39, 813
Total this trade route.....	69, 411	67, 239	90, 772
West coast South America to West Indies:			
Mineral oils.....		12, 400	24, 439
Nitrate.....		11, 969	48, 896
Rice.....		19, 662	14, 818
All other and unclassified.....	36, 288	20, 661	26, 887
Total this trade route.....	36, 228	64, 692	115, 040
West coast South America to Europe:			
Cotton.....	12, 347	8, 049	8, 676
Mineral oils.....		47, 532	
Nitrate.....	16, 864	6, 526	149, 654
Ores, various.....	23, 877	24, 033	49, 791
All other and unclassified.....	18, 243	7, 086	13, 433
Total this trade route.....	71, 331	93, 226	221, 554
Hawaiian Islands to east coast United States:			
Canned fruit.....			73, 430
Molasses.....			12, 299
Sugar.....	10, 489	93, 428	133, 662
All other and unclassified.....	700		2, 867
Total this trade route.....	11, 189	93, 428	222, 258
Australasia to east coast United States:			
Food products, refrigerated.....		1, 887	13, 176
Lead, metal.....	1, 800	16, 086	30, 977
Ores, various.....	48, 585	80, 505	107, 949
Sand.....	1, 863	18, 105	21, 092
Sugar.....		15, 638	2, 090
Tallow.....	705	1, 491	13, 411
Skins and hides.....	715	4, 622	33, 498
Wool.....	18, 053	81, 429	133, 008
All other and unclassified.....	19, 825	10, 255	37, 467
Total this trade route.....	91, 546	230, 018	392, 668
Australasia to east coast Canada:			
Fruit, dried.....		3, 911	12, 296
Sugar.....			45, 258
Wool.....		971	19, 414
All other and unclassified.....		4, 246	21, 499
Total this trade route.....		9, 128	98, 467
Australasia to Europe:			
Canned goods, various.....	5, 155	40, 084	60, 851
Dairy products.....	208, 844	299, 479	273, 920
Flour, wheat.....		24, 066	3, 993
Fruit, dried.....	35, 331	34, 521	21, 451
Iron and steel manufactures.....		2, 002	19, 877
Lead, metal.....	66, 404	65, 456	99, 129
Meat, refrigerated.....	277, 367	269, 794	369, 346
Ore, other than zinc.....	3, 012	13, 808	14, 292
Sugar.....		14, 357	83, 012
Tallow.....	17, 676	29, 697	53, 553
Wheat.....		151, 789	115, 864
Wool.....	100, 710	61, 547	106, 849



# IMPORTANT COMMODITY SHIPMENTS OVER PRINCIPAL TRADE ROUTES— PACIFIC TO ATLANTIC—Continued

[Tons of 2,240 pounds]

	Fiscal year		
	1944	1943	1942
<b>Australasia to Europe—Continued</b>			
Zinc, metal.....	192,365	10,153 69,818 76,673	10,861
Zinc, ore.....			73,843
All other and unclassified.....			96,265
Total this trade route.....	998,930	1,163,244	1,403,106
<b>Philippine Islands to east coast United States:</b>			
Chrome ore.....			77,125
Coconuts.....			19,389
Coconut oil.....			59,370
Copra.....			31,809
Hemp, unmanufactured.....			42,776
Manganese ore.....			22,457
Ores, other than chrome and manganese.....			10,443
Sugar.....			119,024
All other and unclassified.....			22,361
Total this trade route.....			404,754
<b>Asia to east coast United States:</b>			
Bags and bagging.....	72,813	112,366	22
Copra.....	6,657	29,312	
Hemp, unmanufactured.....	1,100	3,216	40,743
Jute, unmanufactured.....		90,856	1,284
Manganese ore.....	212,691	251,016	62,492
Ores, other than manganese.....	10,840	25,476	36,046
Rubber, raw.....	515	20,809	452,318
Sago flour.....			41,028
Skins and hides.....	2,296	11,989	4,592
Spices.....		1,177	15,073
Tea.....	16,241	28,503	15,048
Textiles.....		12,245	1,315
Tin, metal.....			55,885
Vegetable oils.....	5,535	20,946	55,181
All other and unclassified.....	64,549	63,754	115,399
Total, this trade route.....	393,237	671,665	896,427
<b>Asia to Europe:</b>			
Copra.....			73,69
Nuts, edible.....		20,803	
Oilseeds.....		16,647	
Ores, various.....		8,641	11,114
Rubber, raw.....		2,570	71,348
Sugar.....			97,875
Tea.....		18,659	9,555
Vegetable oils.....			47,027
All other and unclassified.....		32,415	84,604
Total, this trade route.....		99,735	395,221
<b>East coast South America to east coast United States:</b>			
Meat, canned.....	798	22,277	
Ores, various.....	1,000	44,696	
Quebracho extract.....	7,413	28,465	
Skins and hides.....	10,631	21,116	
Wool.....	7,571	22,576	
All other and unclassified.....	68,439	37,574	
Total, this trade route.....	95,852	176,738	
<b>East coast South America to Europe:</b>			
Meat, canned.....	3,798	28,847	
Meat, refrigerated.....		58,088	
All other and unclassified.....	363	32,293	
Total, this trade route.....	4,161	119,228	

<sup>1</sup> Zinc metal and ore—no break-down for 1944.

## IMPORTANT COMMODITY SHIPMENTS OVER PRINCIPAL TRADE ROUTES—

## PACIFIC TO ATLANTIC—Continued

[Tons of 2,240 pounds]

	Fiscal year		
	1944	1943	1942
Africa to east coast United States:			
Lumber.....		13,700	
Ores, various.....		173,083	
Sisal fibre.....		15,247	
All other and unclassified.....		35,926	
Total, this trade route.....		237,956	
Africa to Europe. (No single outstanding commodity in this trade.)			

## CLASSIFICATION OF VESSELS BETWEEN LADEN AND BALLAST TRAFFIC

The following table summarizes the ocean-going commercial (tolls-paying) traffic through the Canal during the fiscal year 1944 segregated between laden ships and those in ballast as well as between tankers, ore ships, passenger ships, general cargo ships, and those not designed to carry cargo, and also between vessels of United States registry and those of all other nationalities:



Classification	Vessels of United States registry			Vessels of foreign registry			Total traffic	
	Atlantic to Pacific	Pacific to Atlantic	Total	Atlantic to Pacific	Pacific to Atlantic	Total	Atlantic to Pacific	Total
SUMMARY								
Total cargo and cargo-passenger ships, laden:								
Number of transits.....	178	210	388	383	464	847	561	1,235
Panama Canal net tonnage.....	991,316	1,046,325	2,037,641	1,432,496	1,570,352	3,002,848	2,423,812	5,040,489
Tolls.....	\$892,185	\$842,617	\$1,834,802	\$1,289,245	\$1,413,317	\$2,702,562	\$2,181,430	\$4,537,364
Cargo (tons).....	1,675,504	1,677,362	3,352,866	1,678,845	1,971,776	3,650,621	3,354,349	7,003,487
Total cargo and cargo-passenger ships, ballast:								
Number of transits.....	3	88	91	98	70	168	101	259
Panama Canal net tonnage.....	15,192	598,863	614,055	126,138	287,964	414,102	141,330	886,827
Tolls.....	\$10,938	\$431,181	\$442,119	\$90,820	\$207,334	\$298,154	\$101,758	\$638,515
Total other type ships:								
Number of transits.....	3	924	2,760	6	56	62	9	68
Panama Canal net tonnage.....	1,836			623	1,428	2,051	2,459	2,352
Displacement tonnage.....				7,419	342,256	349,675	7,419	342,256
Tolls.....	\$1,322	\$665	\$1,987	\$4,271	\$172,268	\$176,539	\$5,593	\$172,833
Grand total ships:								
Number of transits.....	184	301	485	487	590	1,077	671	1,562
Panama Canal net tonnage.....	1,008,344	1,646,112	2,654,456	1,559,257	1,859,714	3,419,001	2,567,601	5,986,602
Displacement tonnage.....				7,419	342,256	349,675	7,419	342,256
Tolls.....	\$904,445	\$1,374,463	\$2,278,908	\$1,384,336	\$1,792,919	\$3,177,255	\$2,288,781	\$5,466,036
Cargo (tons).....	1,675,504	1,677,362	3,352,866	1,678,845	1,971,776	3,650,621	3,354,349	7,003,487

## LADEN AND BALLAST TRAFFIC BY NATIONALITY

In the table below the ships of each nationality have been segregated to show separate statistics on vessels which were carrying cargo and/or passengers at the time of transiting the Canal and those which transited in ballast:

Nationality	Laden			Ballast		
	Number of transits	Panama Canal net tonnage	Tolls	Number of transits	Panama Canal net tonnage	Tolls
Argentine.....	1	3,461	\$3,114.90			
Brazilian.....	2	3,224	2,901.60			
British.....	383	2,102,751	1,892,475.90	39	193,234	\$139,128.48
Chilean.....	73	188,963	170,066.70	1	1,211	871.92
Danish.....	2	14,534	13,080.60			
Honduran.....	22	26,617	23,955.30	15	22,415	16,138.80
Mexican.....	4	8,500	7,650.00			
Netherland.....	226	244,856	220,370.40	75	45,830	32,997.60
Norwegian.....	49	245,439	220,895.10	21	101,972	73,419.84
Panamanian.....	59	90,178	81,160.20	12	37,943	27,318.96
Peruvian.....	5	8,900	8,010.00			
Polish.....	1	5,117	4,605.30			
Soviet.....	10	30,242	27,307.80			
United States.....	388	2,037,641	1,834,801.38	97	616,815	444,106.80
Uruguayan.....	5	18,910	17,019.00			
Venezuelan.....	7	12,302	11,071.80	7	12,302	8,857.44
Totals:						
1944.....	1,237	5,041,735	4,538,485.98	267	1,031,722	742,839.84
1943.....	1,605	7,455,623	6,709,136.22	189	778,376	560,430.72
1942.....	2,347	9,854,075	8,868,667.50	312	1,155,929	832,268.88

## AVERAGE TONNAGE, TOLLS, AND TONS OF CARGO PER CARGO-CARRYING VESSEL

The average measurement tonnage, tolls, and tons of cargo per cargo-carrying vessel of 300 net tons and over, Panama Canal measurement, transiting the Panama Canal during the past three fiscal years, are shown in the following table:

	Fiscal year		
	1944	1943	1942
Measured tonnage:			
Panama Canal net.....	4,038	4,590	4,142
Registered gross.....	5,351	6,061	5,553
Registered net.....	3,233	3,667	3,289
Tolls.....	\$3,628	\$4,052	\$3,650
Tons of cargo (including vessels in ballast).....	4,657	5,909	5,119
Tons of cargo (laden vessels only).....	5,662	6,604	5,798

## STEAM, MOTOR, AND OTHER VESSELS

The following table shows ocean-going commercial vessels transiting the Canal during each of the past three fiscal years, segregated according to the method of propulsion:



	Fiscal year		
	1944	1943	1942
Steamers:			
Oil burning.....	738	878	1,254
Coal burning.....	160	301	332
Motor ships.....	593	613	1,065
Miscellaneous.....	71	30	37
Total.....	1,562	1,822	2,688

### FREQUENCY OF TRANSITS OF VESSELS THROUGH THE PANAMA CANAL

During the fiscal year 1944, 750 individual ocean-going commercial vessels, representing 17 nationalities, passed through the Panama Canal. In the aggregate these vessels made a total of 1,562 transits. The number of transits made by individual ships varied from 1 to 63, and averaged 2.08. The greatest number, 63, was made by the small motor vessel *Dido*, plying between the Atlantic terminus of the Canal and the west coast of South America.

The United States was first in the number of individual vessels during the year with 322, as well as in the number of transits—485; Great Britain was second in both individual vessels and transits with 291 and 478, respectively.

The following table shows the number of individual ships, the number of transits for each ship, the total transits for the year, and the average number of transits per individual ship, segregated by nationality:

#### *Vessels making indicated number of transits during fiscal year 1944*

Nationality	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	19	20	21
Argentine.....	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Brazilian.....	2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
British.....	204	51	21	7	6	---	---	---	---	---	---	---	---	---	---	---	---	---
Chilean.....	8	---	---	3	2	2	1	2	1	---	---	---	---	---	---	---	---	---
Danish.....	---	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Free French.....	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Honduran.....	1	---	---	1	1	1	---	---	---	---	---	---	---	---	---	---	---	1
Mexican.....	5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Netherland.....	15	5	---	---	---	1	1	---	---	---	---	---	---	---	---	---	---	---
Norwegian.....	29	10	1	---	2	---	---	1	---	---	---	---	---	---	---	---	---	---
Panamanian.....	5	3	---	1	2	---	1	---	1	1	---	---	---	---	---	---	1	---
Peruvian.....	---	1	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Polish.....	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Soviet.....	10	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
United States.....	236	61	5	11	1	3	---	2	1	2	---	---	---	---	---	---	---	---
Uruguayan.....	---	---	---	---	1	---	---	---	---	---	---	---	---	---	---	---	---	---
Venezuelan.....	---	1	---	3	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Total, 1944.....	518	133	28	26	15	7	3	5	3	3	---	---	---	---	---	---	1	1
Total, 1943.....	909	176	46	16	3	3	2	6	3	3	---	1	---	1	---	---	---	---
Total, 1942.....	458	202	103	85	36	27	5	11	5	5	5	4	1	5	3	1	---	---

*Vessels making indicated number of transits during fiscal year 1944—Continued*

Nationality	24	25	26	27	28	29	32	33	34	36	37	39	44	53	55	58	63	Total ships	Total trans- its	Trans- its per ship
Argentine.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	1	1.00
Brazilian.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2	2	1.00
British.....	---	1	1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	291	478	1.64
Chilean.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	19	74	3.89
Danish.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	2	2.00
Free French.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	1	1.00
Honduran.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5	37	7.40
Mexican.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5	5	1.00
Netherland.....	---	---	---	---	---	---	---	---	1	---	---	---	---	1	1	1	1	27	301	11.15
Norwegian.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	43	70	1.63
Panamanian.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	15	71	4.73
Peruvian.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2	5	2.50
Polish.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	1	1.00
Soviet.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10	10	1.00
United States.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	322	485	1.51
Uruguayan.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	5	5.00
Venezuelan.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	4	14	3.50
Total, 1944.....	---	1	1	---	---	---	---	---	1	---	---	---	---	1	1	1	1	750	1,562	2.08
Total, 1943.....	1	---	---	1	1	1	---	---	1	---	---	1	---	---	---	---	---	1,175	1,822	1.55
Total, 1942.....	2	---	---	---	---	---	3	1	---	2	2	---	1	---	---	---	---	967	2,688	2.78

The following tabulation taken from the preceding table shows for the fiscal year 1944 the number of vessels making a given number of transits through the Panama Canal (from 1 to 63), their aggregate number of transits, and their percent of the total ocean-going commercial transits (1,562):

Number of transits	Num- ber of vessels	Total number of transits	Percent of total Canal transits (1,562)	Number of transits	Num- ber of vessels	Total number of transits	Percent of total Canal transits (1,562)
1.....	518	518	33.2	21.....	1	21	1.3
2.....	133	266	17.0	25.....	1	25	1.6
3.....	28	84	5.4	26.....	1	26	1.7
4.....	26	104	6.7	34.....	1	34	2.2
5.....	15	75	4.8	53.....	1	53	3.4
6.....	7	42	2.7	55.....	1	55	3.5
7.....	3	21	1.3	58.....	1	58	3.7
8.....	5	40	2.6	63.....	1	63	4.0
9.....	3	27	1.7				
10.....	3	30	1.9				
20.....	1	20	1.3	Total.....	750	1,562	100.0

## GROSS TONNAGE OF VESSELS

The 1,562 ocean-going commercial vessels which transited the Canal in the fiscal year 1944 included 1,494 merchant vessels, 10 miscellaneous types (derrick barges, salvage ships and cable repair ships) paying tolls on the basis of net tonnage, and 58 vessels paying tolls on the basis of displacement tonnage.

Of the 1,504 vessels paying on net tonnage, 449 were vessels under 2,000 registered gross tonnage, this representing the most general size of vessels to transit the Canal in 1944. This group was made up largely of vessels plying between the Atlantic terminus of the

Canal and ports on the west coasts of Central and South America, carrying goods which are transshipped at Cristobal to or from larger vessels. There has been much less of a decrease in transit of smaller vessels than in larger vessels, and so vessels under 2,000 tons now account for more transits than any other sized vessel. In 1943 and 1942 vessels in the 6,000- to 8,000-ton group comprised the greatest number, while in the 4 years preceding 1942 the 4,000- to 6,000-ton group had the greatest number.

The average gross registered tonnage of all vessels paying tolls on the basis of Panama Canal net tonnage in the fiscal year 1944 was 5,351 as compared with 6,061 for the fiscal year 1943, representing a decrease of 11.7 percent.

The following tabulation shows the ocean-going commercial vessels, excluding those paying tolls on displacement tonnage, in groups according to registered gross tonnage, segregated by nationality, with average tonnages for 1944 and 1943 and group percentages for the fiscal year 1944:



## Segregation of transits by registered gross tonnage of vessels, fiscal year 1944

Nationality	Under 2,000	2,000 to 3,999 inclusive	4,000 to 5,999 inclusive	6,000 to 7,999 inclusive	8,000 to 9,999 inclusive	10,000 to 11,999 inclusive	12,000 to 13,999 inclusive	14,000 to 15,999 inclusive	16,000 to 17,999 inclusive	Total <sup>1</sup>	Average gross tonnage per vessel, fiscal year	
											1944	1943
Argentine.....										1	4,940	4,288
Belgian.....			1									10,568
Brazilian.....										2	2,318	7,823
British.....	63	8	37	127	97	57	27	3		422	3,089,304	7,321
Chilean.....	30	20	22	2						74	242,257	3,274
Danish.....					2					2	19,646	9,823
Greek.....												4,150
Honduran.....	21	12								37	84,009	2,271
Mexican.....	2	1		4						4	12,577	3,144
Netherlands.....				1						301	310,161	1,030
Norwegian.....	263	19	2	7	10					70	420,175	6,003
Panamanian.....	14	4	20	9	20		3			71	184,399	2,597
Peruvian.....	45	11	4	6	5					5	12,645	2,529
Philippine.....		5										
Polish.....												
Soviet.....	1	6		1						1	7,001	7,001
Swedish.....				2		1				10	41,938	4,194
United States.....												2,830
Uruguayan.....	10	29	59	254	50	80	3			485	3,554,244	7,328
Venezuelan.....	5									5	19,061	3,812
Yugoslavian.....		14								14	41,124	2,937
Total.....	449	136	145	413	184	138	33	3	3	1,504	8,048,116	5,351
Percent of total.....	29.9	9.0	9.6	27.5	12.2	9.2	2.2	0.2	0.2	100.0		6,061

<sup>1</sup> 53 vessels paying on displacement—56 British, 1 Free French, and 1 Mexican—are not included.

## SMALL COMMERCIAL VESSELS TRANSITING CANAL

Transits of small cargo-carrying vessels and other small miscellaneous craft of less than 300 net tons (Panama Canal measurement) or 500 displacement tons are excluded from statistics on ocean-going commercial traffic, although the vessels are not exempt from the payment of tolls. Transits of these small vessels during the year, together with the tonnage, tolls, and amount of cargo carried, are summarized in the following table:

	Atlantic to Pacific	Pacific to Atlantic	Total
Transits:			
Rated on net tonnage.....	105	104	209
Rated on displacement tonnage.....	4	22	26
Total transits.....	109	126	235
Panama Canal net tonnage.....	8,882	9,133	18,015
Displacement tonnage.....	201	5,632	5,833
Tolls.....	\$7,625.22	\$10,057.76	\$17,682.98
Cargo (tons).....	12,820	4,336	17,156

## VESSELS ENTITLED TO FREE TRANSIT

Naval and other vessels owned and operated in the Government service of the United States and Republic of Panama, war vessels of the Republic of Colombia, and vessels transiting solely for the purpose of having repairs made at the Canal shops, are exempt from the payment of tolls, and such vessels are not included in the general transit statistics pertaining to Canal traffic.

In normal times free transits represent a relatively small part of the total Canal traffic (less than 9 percent in 1939), but since the entry of the United States into the war there has been a great expansion in such traffic, which during the past year amounted to 3,333 tolls-free vessels. This was five times the number of free transits in 1939, and comprised 65 percent of the total traffic in 1944. Of the 3,333 vessels transiting free in 1944, 75 percent were routed from the Atlantic to the Pacific.

The following tabulation shows for the past three fiscal years the number of vessels, the measured tonnage, the approximate amount of tolls to which they would have been subject at the prescribed rates if tolls had been charged against them, and the cargo carried by such vessels:

	Fiscal year		
	1944	1943	1942
Number of transits:			
On net tonnage basis.....	2, 107	1, 523	1, 091
On displacement tonnage basis.....	1, 226	850	425
Total transits.....	3, 333	2, 373	1, 516
Tonnage:			
Panama Canal net.....	5, 303, 061	1, 453, 560	1, 806, 340
Displacement.....	2, 903, 783	1, 007, 351	765, 779
Approximate value of tolls.....	\$5, 876, 729	\$1, 739, 410	\$1, 962, 926
Cargo (tons).....	4, 572, 034	419, 080	566, 637

Full information on combat vessels of the United States Navy, including naval supply ships completely manned and operated by the Navy, is not required by The Panama Canal for handling the ships in transit. For these vessels estimates are made of the displacement tonnage or the Panama Canal net tonnage and the consequent value of tolls. No attempt is made to estimate cargo tonnage carried by naval supply ships, which comprise only a minor part of the total noncommercial cargo-carrying vessels.

## CANAL OPERATION AND MAINTENANCE

### HOURS OF OPERATION

Dispatching of ships through the Canal is conducted on schedules. Vessels awaiting transit begin moving through the Canal from the terminal ports at 6 a. m. and dispatches are made thereafter from each terminus at intervals of 1 hour. The following is a summary of normal arrangements in effect at the end of the fiscal year.

From Cristobal Harbor, first ship at 6 a. m., last at about 3 p. m.; from Balboa anchorage, first ship at 6 a. m., last at 2:30 p. m. Variations often occur in these schedules due to wartime emergencies.

Tankers and vessels carrying hazardous cargoes are dispatched at the discretion of the port captain and normally are not permitted to proceed unless they can clear the locks before dark. Numerous exceptions are made in these cases in order to avoid delaying war cargoes.

Special precautions and regulations for handling ships in the locks were continued throughout the year.

### LOCKAGES AND LOCK MAINTENANCE

The following was the operating schedule of the locks at the end of the fiscal year 1944:

#### Gatun:

Shift No. 1—7 a. m. to 3 p. m.—8 locomotives.

Shift No. 1X—10 a. m. to 6 p. m.—8 locomotives.

Shift No. 2—3 p. m. to 11 p. m.—8 locomotives.

## Pedro Miguel:

Shift No. 1—8 a. m. to 4 p. m.—8 locomotives

Shift No. 2—9:30 a. m. to 5:30 p. m.—8 locomotives

Shift No. 3—4 p. m. to 12 m.—8 locomotives

## Miraflres Locks:

Shift No. 1—7 a. m. to 3 p. m.—8 locomotives

Shift No. 2—10 a. m. to 6 p. m.—8 locomotives.

Shift No. 3—3 p. m. to 11 p. m.—8 locomotives.

## LOCKAGES

Lockages and the number of vessels handled (including Panama Canal equipment) are shown in the following table by months for the past fiscal year, with corresponding totals for the past 5 years:

Month	Gatun		Pedro Miguel		Miraflres	
	Lockages	Vessels	Lockages	Vessels	Lockages	Vessels
<i>1943</i>						
July.....	224	421	275	516	272	532
August.....	263	527	291	489	295	516
September.....	211	411	275	518	260	478
October.....	216	425	391	965	255	479
November.....	236	433	295	518	287	542
December.....	250	516	284	550	289	576
<i>1944</i>						
January.....	285	494	320	511	311	512
February.....	269	454	300	483	294	488
March.....	287	468	314	490	302	497
April.....	287	482	303	496	306	512
May.....	350	555	455	945	365	568
June.....	359	660	533	1, 151	420	724
Total.....	3, 267	5, 846	4, 036	7, 632	3, 656	6, 424
Fiscal year:						
1939.....	6, 054	7, 929	6, 283	8, 064	6, 221	7, 988
1940.....	5, 302	7, 713	5, 392	7, 643	5, 286	7, 570
1941.....	5, 103	8, 018	5, 018	7, 489	4, 943	7, 410
1942.....	4, 669	10, 986	4, 445	8, 084	3, 775	5, 806
1943.....	2, 796	5, 236	3, 661	6, 672	3, 395	5, 934

The average number of lockages made daily, and the average number of vessels handled per lockage, during each of the past five fiscal years, are shown in the following table:

Fiscal year	Average number of lockages per day			Average number of vessels per lockage		
	Gatun	Pedro Miguel	Miraflres	Gatun	Pedro Miguel	Miraflres
1940.....	14. 5	14. 8	14. 5	1. 45	1. 41	1. 42
1941.....	14. 0	13. 7	13. 6	1. 57	1. 49	1. 50
1942.....	12. 8	12. 1	10. 3	2. 35	1. 82	1. 54
1943.....	7. 7	10. 0	9. 3	1. 87	1. 82	1. 75
1944.....	8. 9	11. 1	10. 0	1. 79	1. 89	1. 76

## DELAYS TO SHIPPING

The lock-operating machinery functioned smoothly throughout the year except for a few incidents due to faulty operation or minor failure of equipment. The following summary includes all delays to vessels while transiting the locks due to the incidents mentioned:

	Number of lockages delayed	Aggregate delay caused all vessels
Gatun.....	19	3 hours 39 minutes
Pedro Miguel.....	8	3 hours 8 minutes
Miraflores.....	15	3 hours 48 minutes
Total.....	42	10 hours 35 minutes

## MAINTENANCE

During the progress of special improvement projects on the locks in the past several years, regular overhaul periods were impracticable, and the normal schedule which called for overhaul at Pacific locks in 1941 and the Atlantic locks in 1943 was not adhered to.

Miraflores locks had a minor overhaul of both chambers in 1942, which was intended to last until 1944. Between January 12 and April 21, 1944, both sides of Miraflores were given a first-class overhaul, except for miter gate rebearing, which was intended to put these locks in a safe operating condition for at least four more years.

The west side of Pedro Miguel had been overhauled between March 1 and July 2, 1943, and the east side was overhauled between August 13 and September 29, 1943. Certain regular overhaul features were not performed, but sufficient work was done to insure safe operation until 1948.

Some work had been done on the east side of Gatun locks last year, and the west side was given a minor reconditioning during the past year. Gatun locks are now considered to be in safe operating condition until 1946, and a major overhaul at Gatun is now scheduled for that year.



## POWER FOR CANAL OPERATION

The table below summarizes and gives pertinent data relative to the electric power generated by the power system of the Canal Zone for the past three fiscal years:

[Kilowatt hours]

	Fiscal year		
	1944	1943	1942
Gross power generated:			
Gatun hydro station.....	89,314,900	78,970,800	70,169,400
Madden hydro station.....	157,459,700	140,295,000	121,295,300
Diesel stations.....	604,000	2,092,400	1,015,300
Total generated.....	247,378,600	221,358,200	192,480,000
Consumed in station service.....	1,360,617	1,254,849	1,083,389
Net generator output.....	246,017,983	220,103,351	191,396,611
Distributed to consumers.....	222,548,235	198,433,204	170,841,436
Transmission loss—(kilowatt hours).....	23,469,748	21,670,147	20,555,175
Transmission loss—(percent).....	9.5	9.8	10.7
Peak load (kilowatts).....	46,900	39,800	37,600
Date.....	( <sup>1</sup> )	( <sup>2</sup> )	( <sup>3</sup> )

<sup>1</sup> November 1, 1943.

<sup>2</sup> June 21, 1943.

<sup>3</sup> May 21, 1942.

During the past year a new 12,000-kilovolt-ampere transformer was installed to provide necessary reserve transformer capacity at the Gatun Hydroelectric Station. Its installation permitted the general overhaul of the two 8,400-kilovolt-ampere transformers which had been in practically continuous operation for years. An additional new 2,500-kilowatt Diesel engine-driven generating unit was placed in operation at the Miraflores Diesel-Electric Station in December 1943. This station now has three units with a combined generating capacity of 7,500 kilowatts.

During the past year service was temporarily interrupted at various substations of The Panama Canal power system on 14 different occasions. There were 17 interruptions to transmission-line service during the year, of which 4 were caused by lightning flash-over, 4 by animal and reptile contacts, 3 by crane and dragline equipment contacts, 2 by barrage-balloon cable contacts, 1 each by the breakage of a line wire from a previous burn and by the mechanical failure of an insulator, and 2 by unknown causes.

## WATER SUPPLY AND GENERAL WEATHER CONDITIONS

In accordance with world-wide practice, statistics on rainfall and general weather conditions for the Canal Zone and immediate vicinity are compiled on a calendar-year basis. These data for the calendar year 1943 are contained in the annual report of The Panama Canal's

Section of Meteorology and Hydrography, copies of which are available at the Office of the United States Weather Bureau or of The Panama Canal in Washington, D. C. In the following paragraphs data for the fiscal year 1944 are presented for water supply and other subjects where data are readily available on a fiscal-year basis. Where fiscal-year data are not readily available, data are presented for the calendar year 1943.

## WATER SUPPLY

The water requirements of the Panama Canal for hydroelectric power, lockages, and municipal use are supplied by Madden and Gatun Lakes which together drain an area of 1,289 square miles. Water spilled from Madden Lake or drawn for use of Madden hydroelectric station flows into Gatun Lake and remains available for Gatun Lake uses. The total inflow of water from Madden and Gatun drainage basins during the year ended June 30, 1944, and the expenditure of this water are itemized in the following table. Comparable data for the preceding year are also given:

	Million cubic feet, year ended June 30		Percent of available water supply, year ended June 30	
	1944	1943	1944	1943
<b>WATER SUPPLY</b>				
Inflow from Madden Basin.....	87,764	81,880		
Evaporation from Madden Lake.....	2,219	2,280		
Net yield available for Madden Lake uses.....	85,545	79,600		
Inflow downstream from Madden Dam.....	132,767	144,962		
Subtotal.....	218,312	224,562		
Evaporation from Gatun Lake.....	18,568	17,702		
Net yield available for Gatun Lake uses.....	199,744	206,860		
<b>MADDEN LAKE—WATER USES AND EXPENDITURES</b>				
Madden hydroelectric power.....	63,180	52,663	73.9	66.2
Madden Dam spillage and leakage.....	22,183	28,106	25.9	35.3
Change in Madden Lake storage.....	+182	-1,169	+0.2	-1.5
Total Madden Dam expenditures.....	85,545	79,600	100.0	100.0
<b>GATUN LAKE—WATER USES AND EXPENDITURES</b>				
Gatun hydroelectric power.....	64,257	57,752	32.2	27.9
Gatun Lake lockages.....	26,330	22,729	13.2	11.0
Municipal, leakage, and miscellaneous.....	4,334	3,689	2.2	1.8
Total Gatun Lake uses.....	94,921	84,170	47.6	40.7
Gatun spillway discharge.....	102,726	124,590	51.4	60.2
Increase in Madden and Gatun Lake storage.....	+2,097	-1,900	+1.0	-0.9
Total Gatun Lake uses and expenditures.....	199,744	206,860	100.0	100.0

## STORMS AND FLOODS

The only noteworthy general storm during the year was the norther and flood of December 18-20, 1943. This was the most severe storm of the norther type to visit the Atlantic coast of the Canal Zone in recent years, and was similar to the storms that were a menace to shipping in Colon Harbor prior to the construction of the breakwaters in 1915. The wind at Cristobal on December 19 attained a 5-minute maximum of 35 miles per hour and averaged 25 miles per hour from the northwest and north for the 24 hours from midnight to midnight. This is the second highest daily mean wind velocity at Cristobal in a 35-year record, the record of 27 miles per hour having occurred on April 4, 1915. One ship went aground and others were in distress in the heavy seas along the Atlantic coast, but no serious damage occurred inside the protection of the Colon breakwaters. Moderate to heavy rains were general over the Canal Zone and created floods in the Gatun and Madden Lake areas. The maximum 24-hour inflow into Madden and Gatun Lakes combined averaged 152,000 cubic feet per second, amounting to about 13 billion cubic feet, equivalent to slightly less than a 3-foot depth on Gatun Lake. On December 19-20, 12 gates were open at the Gatun spillway for a period of 28 hours with a maximum discharge of 124,530 cubic feet per second. The rains stopped after 2 days and the storm did not develop major flood proportions.

## DRY SEASON—1944

The period in the 1944 dry season during which the inflow into Madden and Gatun Lakes was below Panama Canal water requirements extended from January 10 to April 26, a duration of 108 days. The 1944 dry season was somewhat shorter than usual and the run-off for the dry season months—January to April inclusive—was 8 percent above the 31-year average for this period. However, on account of increased water use for electric power the draft on reserve storage in Madden and Gatun Lakes was the greatest in recent years. The total inflow into Madden Lake for the 108-day period was 10,404 million cubic feet; water requirements for the generation of power and other uses totaled 17,812 million cubic feet, and so the draft on Madden Lake storage amounted to 7,408 million cubic feet, lowering the lake level by 15.09 feet—from elevation 250.30 to 235.21 feet. The total inflow into Gatun Lake during this period, including all water drawn from Madden Lake, was 21,538 million cubic feet; water requirements for lockages and other uses totaled 37,878 million cubic feet, and so the draft on Gatun Lake storage amounted to 16,340 million cubic feet, lowering Gatun Lake level by 3.58 feet—from elevation 86.96 to 83.38 feet.

## LAKE ELEVATIONS

During the fiscal year ended June 30, 1944, Madden Lake varied in elevation between a maximum of 256.06 feet on December 19, 1943, and a minimum of 235.03 feet on April 27, 1944, a range of 21.03 feet. The maximum of 256.06 feet was recorded during the storm of December 18-20, previously discussed, and occurred at a time when Madden Lake was full to capacity in anticipation of the coming dry season. This was the highest level of Madden Lake on record, the previous high being 251.40 feet on December 22, 1942. Gatun Lake varied in elevation between a maximum of 87.00 feet on January 9, 1944, and a minimum of 83.32 feet on April 26, 1944, a range of 3.68 feet.

## RAINFALL

During the calendar year 1943, rainfall in the Canal Zone and adjacent drainage areas averaged slightly above normal. Along the line of the Canal, annual totals ranged from 71.37 inches at Balboa, the Pacific terminal of the Canal, to 126.23 inches at Cristobal, the Atlantic terminus. At Porto Bello, 20 miles northeast of Cristobal and just outside of the Canal Zone, 1943 rainfall totaled 178.35 inches. March 1943, at the height of the dry season, was the month of least rainfall, with monthly totals at different stations ranging from 0.11 to 4.86 inches. The heavy rains accompanying the norther of December 18-20, 1943, made December the month of greatest rainfall with month totals at various stations ranging from 8.53 to 28.75 inches. The greatest 24-hour rainfall during the year was 10.32 inches at Goodyear in the Gatun Lake area on December 19 and 20.

## AIR TEMPERATURE

Air temperatures in the Canal Zone for the calendar year 1943 were very near normal. April was the warmest month with bihourly mean temperatures of 80.4° F. at Balboa Heights on the Pacific coast, 79.0° F. at Madden Dam in the interior, and 81.4° F. at Cristobal on the Atlantic coast. November was the coolest month with mean temperatures of 77.4°, 76.7°, and 79.3° F. at the three stations, respectively. Annual means and extremes at Canal Zone stations during the calendar year 1943 are given in the following table:

Station	1943 maximum		1943 minimum		1943 mean	Departure
	° F.	Date	° F.	Date	(° F.)	(° F.)
Balboa Heights.....	95	Apr. 20	68	Jan. 22	78.7	-0.1
Madden Dam.....	94	Mar. 22	64	do.....	77.7	+0.2
Cristobal.....	92	Oct. 10	70	Aug. 12	80.4	+0.3



Annual means and extremes on record at the above stations are as follows:

Station	Record (years)	Absolute maximum		Absolute minimum		Annual mean (° F.)
		° F.	Date	° F.	Date	
Balboa Heights.....	38	97	Apr. 7, 1912	63	Jan. 27, 1910	78.8
Madden Dam.....	33	98	Apr. 13, 1920	59	{Feb. 4, 1924} {Jan. 30, 1929}	77.5
Cristobal.....	36	95	{Oct. 18, 1924 May 21, 1925}	66	Dec. 3, 1909	80.1

#### WINDS AND HUMIDITY

Wind velocities during the calendar year 1943 averaged 6 miles per hour at Balboa Heights, 4 miles per hour at Madden Dam, and 9 miles per hour at Cristobal. For the 4-month dry-season period—January 1943 to April 1943—average trade wind velocities were 7, 6, and 13 miles per hour at the three stations, respectively. Prevailing wind directions were northwest to the Pacific coast and north on the Atlantic coast. The 5-minute maximum wind velocity at Balboa Heights was 34 miles per hour from the southeast on June 27, 1943, during a violent local thunderstorm. The maximum velocity at Cristobal was 35 miles per hour from the south on August 12 during a similar storm. This velocity was equaled during the December norther with a velocity of 35 miles per hour from the northwest on December 19.

The relative humidity during the calendar year 1943 averaged 84 percent on the Pacific coast and 81 percent on the Atlantic coast. On the Pacific coast monthly means ranged from 77 percent in February 1943 to 88 percent in June 1943. On the Atlantic coast monthly means ranged from 72 percent in February to 85 percent in November.

#### TIDES

During the calendar year 1943 absolute tidal ranges were 21.2 feet on the Pacific coast and 2.1 feet on the Atlantic coast. At Balboa, the Pacific terminal of the Canal, the following extremes occurred: Highest high water 9.8 feet above mean sea level, lowest low water 11.4 feet below mean sea level, and the greatest range between consecutive tides 20.2 feet on January 8, February 7, and August 18. At Cristobal, the Atlantic terminal of the Canal, the following extremes occurred: Highest high water 1.11 feet above mean sea level, lowest low water 0.95 foot below mean sea level, and the greatest range between consecutive tides 1.81 feet on January 7.



## SEISMOLOGY

Two earthquake shocks were felt by Canal Zone residents during the fiscal year 1944—on August 12 and August 27, 1943. Both shocks were slight and felt by only a few.

On May 2, 1943 (not mentioned in the annual report for fiscal year 1943), there occurred the heaviest shock recorded on the seismographs in the Canal Zone since May 6, 1936. The time of the first onset was 12:18:47 p. m., seventy-fifth meridian time. The shock was generally felt by residents of the Canal Zone and many were alarmed and ran outdoors. Of seven pendulum clocks in the Administration Building at Balboa Heights, five stopped and two continued to run. In private residences some dishes and mirrors were broken but material damage was small. The United States Coast and Geodetic Survey placed the epicenter in latitude  $6.4^{\circ}$  N., longitude  $80.1^{\circ}$  W., about 180 miles southward from Balboa Heights on the floor of the Pacific Ocean.

## MARINE ACTIVITIES

Transit operations continued throughout the first 10 months of the year, with only one side of each pair of locks in use at one time. In May 1944, however, both sides of all locks became available for use, and were placed in operation. Wartime precautions for safeguarding the Canal and vessels in transit continued throughout the year.

While there was a further decrease from 1943 in the commercial tolls-paying traffic, this was more than offset by the increase in vessels transiting free of tolls. Because of changes in the types of vessels transiting the Canal, it is difficult to make a precise comparison between the over-all volume of traffic (tolls-paying and free) passing through last year as compared to the preceding years. All factors considered, total traffic in fiscal year 1944 was some 25 percent greater than in the preceding year.

## HARBOR ACTIVITIES

The table following shows the number of vessels handled at docks of the terminal ports of Cristobal and Balboa for the fiscal year 1944 as compared with the two previous years:

	Cristobal—Fiscal year			Balboa—Fiscal year		
	1944	1943	1942	1944	1943	1942
Number of vessels docked:						
Handling passengers and/or cargo.....	817	639	1,558	697	693	646
For all other purposes.....	1,333	1,404	941	1,410	1,230	959
Total.....	2,150	2,043	2,499	2,107	1,923	1,605

## AIDS TO NAVIGATION

On June 30, 1944, there were 767 aids to navigation in service in the Panama Canal and its approaches, maintained by the lighthouse subdivision, and classified as follows: Acetylene gas, 110; electric, 343; unlighted, 314. Included in the foregoing are 2 automatic acetylene gas operated lighthouses at Morro Puercos and Jicarita Island on the coast of Panama in the Pacific approach, maintained in the interests of the United States Coast Guard. One visit was made to these aids during the year by the U. S. S. *Favorite*, for the purpose of inspecting equipment and servicing the aids.

## ACCIDENTS TO SHIPPING

The board of local inspectors investigated and reported on 37 accidents in connection with shipping in Canal Zone waters during the fiscal year 1944, a summary of which follows with a comparison of accidents in the two previous years:

Cause of accident	Fiscal year		
	1944	1943	1942
Collision.....	12	14	7
Ship struck lock wall.....	6	7	2
Ship struck dock.....	6	1	5
Ship grounded.....	4	5	6
Ship damaged by tug.....	3	1	1
Ship struck Canal bank.....	2	1	1
Other causes.....	4	6	6
Total.....	37	35	28

The only investigation involving the loss of life was that of the dredging division's tug *Chagres* which was destroyed by a mine on August 3, 1943, in the Pacific entrance. The master and seven of the crew were lost.

## INSPECTIONS

Complete inspections were made of the hulls, power plant, and equipment of 11 American and 13 foreign vessels and certificates of seaworthiness issued. Fifty hulls of commercial vessels and of Canal and railroad plant were inspected in dry dock. Seventy-three steam boilers were given annual inspections and hydrostatic tests. Annual inspections were made and certificates of inspection issued to 268 motorboats.

## ADMEASUREMENT

During the year the principal features of interest in admeasurement work continued to be the preponderance of newly constructed ships—Liberty and other types—arriving for initial measurement; peak loads in measurement work due to vessels arriving in large convoys;

and a large number of vessels requiring corrections in Panama Canal tonnage certificates already issued, due to structural alterations occasioned by gun crew accommodations and magazine installations incident to the war.

#### SALVAGE AND TOWING

The U. S. S. *Favorite* was engaged in salvage and towing operations during the year, as follows: From September 1 to 7, 1943, in assisting the S. S. *Brisbane Star* which ran aground at Mamei Curve in Gatun Lake; from December 14 to 31, 1943, and from January 3 to 22, 1944, in assisting the S. S. *Herma Gorthon* which ran aground at Rocas Negrilla on the west coast of Colombia; and from May 6 to 13, 1944, in towing a derrick barge and scow to Cartagena, Colombia. The U. S. *Gorgona* was engaged in similar operations, as follows: From July 1 to 12, 1943, in towing a barge from Balboa to Puntarenas, Costa Rica, for the Pan American Highway; from August 21 to 25, 1943, and from August 27 to September 2, 1943, in towing barges from Balboa to Golfito, Costa Rica; from December 1 to 2, 1943, in an unsuccessful attempt to pull the small tug *Betty* off Chame Point, Republic of Panama, where it had run aground. The U. S. *Tavernilla* was engaged in towing and salvage operations, as follows: On July 10, 1943, in assisting the S. S. *Cape Gaspe* from the San Blas region to Cristobal; from July 27 to 31, 1943, in towing Panama Railroad barge No. 206 from Quita Sueña Bank to Cristobal. The U. S. *Tavernilla*, together with the U. S. *Alhajuela*, was engaged on December 19 and 20, 1943, in an attempt to salvage the S. S. *James Withycombe* which had grounded off Fort Randolph, C. Z. The U. S. *Alhajuela* was engaged on September 10 and 11, 1943, in assisting to Cristobal the tug *White Shoals* which had become disabled.

#### OPERATION OF TUGS

Because of the great increase in activity at peak periods, four tugs were added to the fleet available for assisting vessels at the Canal terminals and where necessary through the Canal. At the end of the year there were three large tugs and one small tug in service at each terminal of the Canal. The following statistics summarize the services of tugs used in marine activities (as distinct from dredging) during the past three fiscal years:

	Operating hours—Fiscal year			Jobs handled—Fiscal year		
	1944	1943	1942	1944	1943	1942
Balboa.....	9,780	7,548	5,448	6,408	5,112	3,072
Cristobal.....	5,964	5,364	5,712	4,392	4,284	4,884
Total.....	15,744	12,912	11,160	10,800	9,396	7,956

The above table does not fully reflect the increased demand for tug service at Balboa, since it does not include the statistics for tugs which were regularly borrowed from dredging service to assist vessels during peak periods.

#### MAINTENANCE OF CHANNEL—OTHER DREDGING ACTIVITIES

Dredges worked throughout the year on the maintenance of the Canal channel and terminal harbors from deep water of the Atlantic entrance to deep water in the Pacific, as well as on various special maintenance projects. For the preceding 3 years most of the dredging plant of The Panama Canal had been engaged on various construction and special maintenance projects incident to the war effort and a minimum of maintenance dredging had been done in the Canal prism. During the past fiscal year the dredging plant was enabled to perform a normal amount of maintenance work on the Canal prism in addition to a substantial amount of excavation on the Third Locks project.

Excavation during the past year is summarized in the following table:

[Cubic yards]

Location	Earth	Rock	Total
<b>CANAL PRISM DREDGING</b>			
Atlantic entrance, maintenance.....	1,402,900	116,300	1,519,200
Gaillard Cut:			
Maintenance—regular.....	118,800		118,800
Maintenance—slides.....	55,200	33,400	88,600
Project No. 13.....	379,800	954,500	1,334,300
Pacific entrance:			
Maintenance.....	2,425,700		2,425,700
Project No. 1.....		2,000	2,000
Total Canal prism.....	4,382,400	1,106,200	5,488,600
<b>AUXILIARY DREDGING</b>			
Cristobal Harbor:			
Maintenance.....	403,000		403,000
Navy dock facilities.....	6,500	121,500	128,000
Marine Railways.....	174,600		174,600
Dock No. 15 extension.....	11,400	5,100	16,500
Balboa Harbor:			
Maintenance.....	509,500	19,900	529,400
Dry Docks Nos. 2 and 3.....	6,900	37,100	44,000
Refloating grounded ship, Gatun Lake.....	20,000	21,600	41,600
Miraflores Lake anchorage.....	11,200		11,200
Outer anchorage.....	531,800	56,400	588,200
Naos Island dock approach.....	103,100		103,100
Subtotal.....	1,778,000	261,600	2,039,600
Chagres River gravel service.....	264,900		264,900
Total auxiliary.....	2,042,900	261,600	2,304,500
<b>THIRD LOCKS DREDGING</b>			
New channels:			
New Gatun locks, north approach.....	2,873,700	397,400	3,271,100
New Miraflores locks:			
North approach.....	194,200	215,300	409,500
South approach.....	1,927,900	448,300	2,376,200
Total bypass channels.....	4,995,800	1,061,000	6,056,800
Grand total:			
Fiscal year 1944.....	11,421,100	2,428,800	<sup>1</sup> 13,849,900
Fiscal year 1943.....	9,339,400	1,149,500	<sup>1</sup> 10,488,900

<sup>1</sup> In addition, 88,580 cubic yards of Chamé sand were produced in fiscal year 1944 and 191,320 cubic yards in 1943.



Dredging operations are divided into three major districts; the Atlantic district from contour 42' below mean sea level in the Atlantic Ocean to Gatun locks; the Central district from Gatun locks to Pedro Miguel locks; and the Pacific district from Pedro Miguel locks to contour 50' below mean sea level in the Pacific Ocean. The total excavation in these three areas, exclusive of Third Locks excavation, is summarized as follows:

	[Cubic yards]			
	Section			
	Atlantic	Central	Pacific	Total
Canal prism:				
Earth.....	1,402,900	553,800	2,425,700	4,382,400
Rock.....	116,300	987,900	2,000	1,106,200
Total.....	1,519,200	1,541,700	2,427,700	5,488,600
Auxiliary:				
Earth.....	595,500	20,000	1,162,500	1,778,000
Rock.....	126,600	21,600	113,400	261,600
Total.....	722,100	41,600	1,275,900	2,039,600
Total (exclusive of Third Locks):				
Earth.....	1,998,400	573,800	3,588,200	6,160,400
Rock.....	242,900	1,009,500	115,400	1,367,800
Grand totals:				
Fiscal year 1944.....	2,241,300	1,583,300	3,703,600	7,528,200
Fiscal year 1943.....	650,900	664,800	7,677,000	8,992,700

<sup>1</sup> Does not include Chagres River gravel or Chamé sand service.

#### ORDINARY CHANNEL MAINTENANCE—CANAL PRISM DREDGING

*Atlantic district.*—Maintenance dredging in the Atlantic entrance section of the Canal channel was in progress 45 days during the past year by the pipe-line suction dredge *Mindi*, which excavated a total of 1,519,200 cubic yards of material.

*Central district* (maintenance exclusive of slide excavation).—The dipper dredge *Gamboa* worked 23 days during the past year on maintenance in Gaillard Cut and excavated a total of 90,800 cubic yards of earth. The dipper dredge *Paraíso* also worked 6 days in this same area excavating 28,000 cubic yards of earth.

*Gaillard Cut—Project No. 13.*—This project, which consists of widening Culebra Reach by 200 feet to the westward, was started in January 1935 and has been continued on a low priority basis since that time. During the past fiscal year shore mining, grading, and sluicing were carried out as in the past. A total of 536,350 cubic yards of rock was broken by shore mining and a total of 497,100 cubic yards of material was sluiced into the Canal prism to be removed by regular dredging operations. The dipper dredge *Gamboa* worked 167 days during the year on this project excavating a total of 1,000,700 cubic yards of earth and rock. The dipper dredge *Paraíso* worked 48 days on this project removing 316,600 cubic yards of material and the dipper dredge



*Cascadas* worked four days excavating 17,000 cubic yards of material. Total excavation to date on this project is 4,790,900 cubic yards and at the end of the fiscal year 1944 it was 61 percent complete.

*Pacific district.*—The pipe-line suction dredge *Las Cruces* worked for 128 days during the past year on maintenance dredging in the Pacific entrance section of the Canal channel and removed 2,425,700 cubic yards of material.

#### AUXILIARY DREDGING—OTHER PROJECTS

*Cristobal Inner Harbor.*—The pipe-line suction dredge *Mindi* worked on maintenance dredging in the Cristobal Inner Harbor for 25 days during the past year excavating 403,000 cubic yards of material.

*Navy dock facilities, Cristobal Inner Harbor.*—The drill boat *Thor* was engaged in subaqueous mining for 64 days on this project and broke 95,500 cubic yards of rock. The pipe-line suction dredge *Mindi* worked 18 days on this project removing 128,000 cubic yards of material, most of which was mined rock.

*Marine railways, Cristobal Inner Harbor.*—The suction dredge *Mindi* worked for 19 days excavating 174,600 cubic yards of earth at the site for the marine railways built at the Cristobal shops.

*Dock No. 15 extension, Cristobal Inner Harbor.*—The dipper dredge *Paraiso* worked 4 days and removed 16,500 cubic yards of material on this project.

*Balboa Harbor maintenance.*—The suction dredge *Las Cruces* worked 35 days on maintenance in Balboa Harbor removing 523,500 cubic yards of material, practically all of which was earth. The dipper dredge *Cascadas* worked 5 days in this area and removed 5,900 cubic yards of material.

*Dry docks Nos. 2 and 3, Balboa Harbor.*—The dipper dredge *Cascadas* worked 15 days excavating 44,000 cubic yards of material for the two new dry docks completed during the past fiscal year.

*Refloating grounded ship—Gatun Lake.*—The dipper dredge *Gamboa* worked for 5½ days at a dump in Gatun Lake excavating 41,600 cubic yards of material in order to refloat a grounded ship.

*Miraflores Lake anchorage.*—The dipper dredge *Paraiso* worked 2½ days excavating 11,200 cubic yards of material for a tie-up station in Miraflores Lake.

*Outer anchorage, Pacific entrance.*—The drill boat *Vulcan* was engaged in subaqueous mining for 42 days during the past year on this project and broke 56,400 cubic yards of rock. The suction dredge *Las Cruces* worked 40 days on this project and excavated 531,800 cubic yards of earth. The dipper dredge *Paraiso* worked 10 days on this project removing 56,400 cubic yards of mined rock.

*Naos Island dock approach.*—The suction dredge *Las Cruces* worked 7 days excavating 103,100 cubic yards of material in the approach to this dock.

### THIRD LOCKS DREDGING

The Panama Canal's dredging division is charged with the performance of practically all of the wet excavation in connection with the construction of the Third Locks project. During the past year the following construction dredging was performed in various bypass channels for this project:

*New Gatun locks, North Approach Channel.*—Shore mining with rotary drills was in progress for 70 days in this area during which time 75,300 cubic yards of rock were broken. The drill boat *Thor* was engaged in subaqueous mining for 79 days and broke 102,500 cubic yards of rock. The pipe-line suction dredge *Mindi* worked for 140 days during the past year on construction in this bypass channel during which time it excavated a total of 3,271,100 cubic yards of material, most of which was earth. Total construction excavation to date on this project is 7,701,700 cubic yards and at the end of the year it was 92.8 percent complete.

*New Miraflores locks, North Approach Channel.*—Shore mining was in progress for 31 days in this area, during which time 12,600 cubic yards of rock were broken. The dipper dredge *Gamboa* worked 35 days removing 176,000 cubic yards of material and the dipper dredge *Paraiso* worked 50 days removing 233,500 cubic yards of material on this project. Total construction excavation to date on this project is 2,214,300 cubic yards and it was 59.8 percent complete at the end of the year.

*New Miraflores locks, South Approach Channel.*—Shore mining with rotary drills was in progress for 156 days during the past year, during which time 20,600 cubic yards of rock were broken. Subaqueous mining was carried out by the drill boats *Thor* and *Vulcan* and by rotary drill: The drill boat *Thor* worked 116 days and broke 73,700 cubic yards of rock; the drill boat *Vulcan* worked 241 days and broke 134,500 cubic yards of rock, while an additional 15,200 cubic yards of rock were broken by rotary drill mounted on pontoons and barges. The dipper dredge *Cascadas* worked 244 days in this bypass channel, removing 821,500 cubic yards of material. The dipper dredge *Paraiso* worked 86 days in this area, removing 361,000 cubic yards of material, and the suction dredge *Las Cruces* worked 90 days, removing 1,193,700 cubic yards of material. At the end of the fiscal year excavation on this project totaled 5,617,600 cubic yards and it was 45.5 percent complete.

## SLIDES

Excavation from slides in Gaillard Cut from June 30, 1913, to the beginning of the current fiscal year totaled 51,738,600 cubic yards. During the past year 88,600 cubic yards were excavated from this area, bringing the total excavation from slides to 51,827,200 cubic yards as of June 30, 1944. Slide activity throughout the cut was generally much less than in previous years, being even less than in fiscal year 1943. Culebra slide (west) continued to be the most active of all slides. Small movements were observed in seven slide areas during the past year, including small distinct breaks in Lirio slide (west), Barge Repair slide (east), and Miraflores slide (Cocoli Hill). Only at Barge Repair slide (east) did any slide material actually enter the Canal prism. Numerous bank breaks occurred, but these were all limited to small movements of no consequence.

During the past year the dipper dredge *Gamboa* worked 14 days in Culebra slide (west) removing 73,600 cubic yards of material. The dipper dredge *Gamboa* worked  $1\frac{1}{2}$  days at Barge Repair slide (east) removing 15,000 cubic yards of material.

## SUBSIDIARY DREDGING DIVISION ACTIVITIES

## SAND AND GRAVEL

During the past fiscal year 225,514 cubic yards of sand and gravel of all classes (both run-of-bank and washed) were shipped from the gravel stock pile at Gamboa, as compared with 545,591 cubic yards shipped in the previous fiscal year. The suction dredge *Las Cruces*, assisted by relay barge No. 24, worked 42 days producing 264,900 cubic yards of run-of-bank gravel which were pumped into the stock pile at Gamboa.

The craneboat *Atlas* was in service for 64 days excavating 88,580 cubic yards of sand at Chamé Point, Republic of Panama. This sand was pumped into barges and delivered to the docks at Balboa.

## HYACINTH CONTROL AND OTHER ACTIVITIES

The Canal and adjacent waters through Gaillard Cut, Miraflores Lake, and Gatun Lake (including all dump areas) were patrolled and the growth of hyacinths kept under control. Log booms at the mouth of the Chagres and Mandinga Rivers were maintained to prevent hyacinths, logs, floating islands, and other obstructions from entering the Canal channel during freshets, or spilling at Madden Dam. During the year periodical inspection trips were made in the Chagres, Mandinga, Frijoles, and Azules Rivers and along the shores of Barro Colorado Island, Peña Blanca and Gigante Bays, excavation dumps and Miraflores, Pedro Miguel, and Red Tank Lakes. Weekly inspec-

tion trips were also made of the Canal channel between Gamboa and Gatun.

It is estimated that 37,044,000 hyacinth plants were destroyed during the past year of which 20,961,000 were pulled and 16,083,000 were sprayed; of the plants pulled 6,140,000 were removed by the debris cableway. Ninety-nine cords of driftwood were removed by the debris cableway during the past year and an additional estimated 664 cords of driftwood were picked up along the banks of the Chagres, Mandinga, Chilibre, and Cocoli Rivers, Gaillard Cut, and Gatun, Miraflores, Pedro Miguel, and Red Tank Lakes.

## EQUIPMENT

The more important items of dredging equipment or plant were operated during the past year as shown in the following tabulation:

Unit and name	Type	In service	Out of service (months)	
			Repairs	Reserve or standby
DREDGES				
Cascades	15-yard dipper	8.8	0.1	3.1
Gamboa	do	8.1	1.1	2.8
Paraiso	do	6.8	1.2	4.0
Las Cruces	24-inch suction	11.2	.8	
Mindi	28-inch suction	8.1	3.9	
CRANEBOAT				
Atlas	75-ton	7.9	2.1	2.0
DERRICK BARGE				
No. 157	40-ton	4.7	1.1	6.2
GRADER BARGE				
No. 4	14-inch pumps	8.9	.5	2.6
RELAY BARGES				
No. 3				12.0
No. 24		1.4	.5	10.1
DRILLBOATS				
Terrier No. 2	Steam			12.0
Teredo No. 2	do			12.0
Vulcan	Air	9.3		2.7
Thor	do	8.5		3.5
AIR COMPRESSOR				
No. 29	2,500 CFM	7.3		4.7
FLOATING CRANES				
Ajax	250-ton	2.8	.5	8.7
Hercules	do	6.9	.2	4.9
FERRY BOATS				
Presidente Amador		8.2	.8	3.0
President Roosevelt		8.6	1.3	2.1
Presidente Porras		8.3	3.2	.5

In addition to the above there were also operated as part of The Panama Canal's dredging plant large tugs and small tugs or tenders and an attendant fleet of dump scows, sand barges and service lighters, launches, quarter boats, and related drilling and excavating equip-



ment. The following changes in the tug fleet occurred during the year: Two large tugs, the *San Pablo* and the *Culebra*, built under contract in the United States, were received and placed in service; the large tug *Chagres* struck a mine and sank in the Pacific entrance; the large tug *Empire* and the small tug *Miraflores* were temporarily transferred from dredging to marine activities; and one small tug, the *Cocoli*, was sold. At the end of the year nine large and three small tugs were engaged in or available for dredging service.

### FERRY SERVICE

Thatcher Ferry service was continuous throughout the past year except for 4½ days during the month of July 1943 when it was suspended because of repairs to the ferry ramps and racking. This ferry crosses the Canal at the Pacific terminal and connects Balboa on the east bank with Thatcher highway on the west bank. Service was maintained by rotating the three ferry boats, *Presidente Amador*, *President Roosevelt*, and *Presidente Porras*, keeping two of these ferries in continuous service.

Since the opening of the new bridge across the Canal at Miraflores in May 1942 the ferry traffic has become fairly well stabilized. In the following table are shown the more important statistics relative to operations of the Thatcher Ferry for the past three fiscal years:

	Fiscal year		
	1944	1943	1942
Single trips made.....	54, 639	41, 158	61, 218
Vehicles carried:			
Panama Canal vehicles.....	32, 681	23, 118	33, 617
U. S. Army vehicles.....	163, 723	122, 780	148, 210
Commercial trucks.....	91, 148	101, 795	206, 184
Commercial passenger cars.....	92, 723	63, 991	137, 366
Private cars.....	216, 991	167, 659	466, 821
Total vehicles carried.....	597, 266	479, 343	992, 198
Total passengers carried.....	3, 211, 690	3, 208, 626	5, 943, 845

### THIRD LOCKS PROJECT

#### AUTHORIZATION

The Third Locks project, providing for the improvement and enlargement of the capacity of the Panama Canal in the interest of defense and inter-oceanic commerce at a cost not to exceed \$277,000,000 was authorized by act of Congress, Public No. 391, Seventy-sixth Congress, first session, approved August 11, 1939. The project involves the design and construction of a new set of locks at some distance from the existing locks, the excavation of approach channels to connect



the new locks with the existing Canal, and the design and construction of appurtenant works.

#### GENERAL PROGRAM

Excavation work on the Third Locks project was started by the dredging plant of The Panama Canal on July 1, 1940. The entire program was prosecuted vigorously from that date until May 1942. On May 25, 1942, the Governor, pursuant to a directive of the Secretary of War, issued instructions that construction of the third locks project be modified in order to bring this project into closer conformity with the over-all war program.

Under the modified program, dredging in the approach channels was continued but on a lower priority basis. Contracts for excavation of the New Gatun and Miraflores locks sites were carried to completion. Other features carried to completion were the designs and specifications, construction of the bridge over existing Miraflores locks, the relocation of various utilities and construction of emergency electric power plants.

Among the more important items suspended under the modified program were the contracts for construction of the locks structures, furnishing cement and for processing aggregate for the locks structures, the excavation for the Pedro Miguel lock, fabrication of lock gates, and purchase of equipment for operation of the locks.

There had been appropriated for fiscal years 1941, 1942, and 1943 a total of \$106,758,800 for the Third Locks project. Due to the modification of the construction program in May 1942 the funds which had been appropriated were more than sufficient to carry on the curtailed program through fiscal year 1945. Accordingly, the War Department Civil Functions Act approved June 26, 1944, returned \$30,257,572 to the Treasury.

#### DESIGNS—PLANS—SPECIFICATIONS

During the past fiscal year designs were completed and contract plans prepared for virtually all mechanical and electrical equipment for the locks. Final revision was made of the contract drawings and maps for locks construction to bring them into conformity with work performed and with the detailed development of mechanical and electrical equipment. A great deal of the work of relocating highways, railroads, and transmission lines was completed. Specifications were prepared for numerous features of the lock operating machinery, equipment, and facilities. A comprehensive report was prepared on all phases of the design of the Third Locks project for convenient reference when operations are resumed. Engineering studies of foundations and other features were continued on a limited scale. Labora-

tories and other facilities rendered specialized services to other governmental agencies in addition to continuing essential Third Locks work.

#### CONSTRUCTION

The major construction work accomplished during the past year on the Third Locks project was the dredging performed in the approach channels, completion of the excavation contracts, and construction of the emergency power plants.

A total of 6,056,800 cubic yards was excavated from the Gatun north and the Miraflores north and south approach channels. Further details of the dredging work on the Third Locks project are given on page 43 of this report. Final payment was made during the past year for contract excavation of both the Gatun and Miraflores locks sites. The emergency power plant at Gatun was completed and turned over to the electrical division of The Panama Canal for operation and maintenance effective July 1, 1944. The emergency power plant at Cocoli on the Pacific side was practically complete at the end of the fiscal year.

Owing to the modification of the Third Locks project, it had been necessary to adjust and cancel portions of various contracts. These adjustments resulted in the Government's taking over considerable amounts of plant, equipment and material. During the year practically all of this plant, equipment and material, was disposed of by sale, mostly to other units of the United States Government.

Among the more important items uncompleted at the end of the fiscal year were the relocation of the 44-kilowatt power transmission line at Gatun and, as stated above, the emergency power plant at Cocoli.

Advice was received that the War Department considered Panama Canal contracts subject to renegotiation. Delegation to the Governor of authority to renegotiate Third Locks contracts has been requested.

#### PERSONNEL

The force working on the project was reduced from 367 at the start of the fiscal year to 88 at the end of the fiscal year. Four consulting engineers were employed on a contract basis to advise on a special foundation problem.

## SECTION II

### BUSINESS OPERATIONS

The business enterprises operated by The Panama Canal and by the Panama Railroad Co. embrace a number of activities which in the United States would normally be carried on by private initiative. They have been developed to meet the needs of shipping passing through the Canal and of the Canal-Railroad organization and its employees. During the past year, as in the 3 years preceding, these activities have also served very important needs of the Army and Navy, and have been expanded and adjusted to meet the requirements of the war effort. The business enterprises include the supply of fuel, provisions, ship chandlery, and repairs to vessels; the provision of public utility services; the maintenance of living quarters and the sale of food, clothing, and other essentials to Canal and Railroad employees; the handling of cargo and allied operations; and the operation and management of a railroad line. A steamship line between New York and the Isthmus also was operated prior to the outbreak of war, but since the steamers of the line were requisitioned for direct employment in the war effort, this function was inactive during 1944.

The Canal and the Railroad are separate organizations, but the administration of both organizations is vested in the Governor of The Panama Canal, who is also president of the Panama Railroad Co.

#### PANAMA CANAL BUSINESS OPERATIONS

Business operations of The Panama Canal are conducted separately from operating activities pertaining directly to the transiting of vessels and the government of the Canal Zone. The annual appropriation acts for The Panama Canal authorize the expenditure and reinvestment of all moneys received from the conduct of auxiliary business activities, with the proviso that any net profit derived from such business activities shall be covered annually into the Treasury of the United States.

It is the aim to operate the business activities as a whole on a self-supporting basis and, in general, to include as a charge against their operations a fixed capital charge of 3 percent as interest on the investment. The amount representing charges for interest on investment is a part of the net profits covered into the Treasury and is in effect a reimbursement to the United States for interest paid by it to holders of United States bonds. The investment in business

activities totaled \$46,448,530.57 at the beginning and \$46,950,569.31 at the end of the fiscal year (tables 4 and 5, sec. V). The capital charge for the fiscal year 1944 was \$1,069,606.10 (table 20, sec. V). The net revenues of \$1,553,294.06 exceeded this amount by \$483,687.96.

### MECHANICAL AND MARINE WORK

During the past fiscal year the mechanical and marine work performed by the mechanical division continued at a high level, the total volume for fiscal year 1944 actually being somewhat greater than in the preceding year, thereby establishing a new high for volume of business. As was the case in fiscal year 1943, charges on work performed for the United States Navy are not directly comparable with those of earlier years or with charges to other interests, because the Navy has continued the practice started in 1943 of supplying practically all material used for naval work.

There was a further increase of approximately 12 percent in work for the Navy, and an increase of 65 percent in work accomplished for the Army. Work performed for divisions of The Panama Canal decreased by 25 percent as compared with the preceding year. In normal times The Panama Canal organization supplies the bulk of the work load which keeps the mechanical division functioning with complete ship repair facilities, but during the past year The Panama Canal's proportion was reduced to only about one-fifth of the total work load.

The following table shows the classes and sources of work performed during the past two fiscal years:

*Gross revenues—Class and source*

	Fiscal year 1944	Percent of total	Fiscal year 1943	Percent of total
<b>Class:</b>				
Marine .....	\$12,607,957	73.4	\$10,460,410	63.6
Railroad .....	1,021,101	5.9	1,387,273	8.4
Fabricated stock .....	768,426	4.5	596,927	3.6
Sundries .....	2,773,237	16.2	4,003,737	24.4
Total .....	17,170,721	100.0	16,448,347	100.0
<b>Origin:</b>				
Panama Canal .....	3,674,955	21.4	4,959,330	30.2
Panama Railroad .....	1,092,726	6.4	1,485,459	9.0
U. S. Army .....	2,552,516	14.9	1,554,893	9.5
U. S. Navy .....	7,949,610	46.3	7,079,926	43.0
Outside interests .....	1,900,914	11.0	1,368,739	8.3
Total .....	17,170,721	100.0	16,448,347	100.0

Operating expenses for the fiscal year totaled \$17,062,175, leaving a net revenue from operations of \$108,546.



## DRYDOCKS

During the past fiscal year two new small drydocks were placed in operation at Balboa and two marine railways were placed in operation at Cristobal. Drydocks Nos. 2 and 3 at Balboa began docking operations in March 1944. Marine Railway No. 2 at Cristobal began docking operations in March 1944, and Marine Railway No. 1 at Cristobal was first used in May 1944. These new facilities are in addition to the large (1,044-foot) drydock at Balboa and the medium (385-foot) drydock at Cristobal.

The following table summarizes drydocking operations at all drydocks and marine railways during fiscal year 1944, with comparative figures for the two preceding years, in which only the two main drydocks were in operation:

*Number of vessels drydocked*

	Fiscal year 1944			Fiscal year	
	Balboa drydocks	Cristobal drydock and marine railways	Total	1943 total	1942 total
Vessels belonging to:					
U. S. Army.....	88	24	112	61	39
U. S. Navy.....	104	155	259	232	89
Commercial.....	17	30	47	38	28
Total outside.....	209	209	418	331	156
Panama Canal.....	22	9	31	31	28
Panama Railroad Co.....				1	1
Grand total.....	231	218	449	363	185

During the past fiscal year Balboa Drydock No. 1 was unoccupied a total of only 4 days, while the Cristobal Drydock was unoccupied only 6 days.

## PLANT IMPROVEMENT

The largest items of plant expansion completed during the past fiscal year were the drydocks and marine railways discussed in the preceding section. In addition, the general program of expansion and modernization of marine repair and other facilities was continued throughout the past year. Approximately 140 pieces of new equipment and machine tools were installed and placed in operation. Additional buildings were constructed to house the expanded facilities, while numerous major repairs and overhauls of facilities and equipment were accomplished to improve the ability of the plant to meet the added war-time demand placed upon it. Ship repair facilities at Balboa were further expanded by the installation of Repair Berth No. 2, a floating repair berth leading off from dock 13.



## OPERATIONS

The work load of the mechanical division, like that of ship repair yards in general is highly erratic. Because the general irregularity of local traffic has accentuated the problem of meeting peak demands, it has been necessary to establish and to enforce strictly a priority schedule for each type of work undertaken. As in 1943, it has been necessary to refuse certain classes of work, which would have tied up the large drydock for long periods of time and thus made it unavailable for the emergency docking of vessels of higher priority. In each case sufficient repairs were made to allow the affected vessel to proceed safely to some continental repair yard for the accomplishment of permanent repairs.

To assist in maintaining a reasonably steady work load, the Navy Department has assigned to the marine repair shops of The Panama Canal, the construction and outfitting of three floating workshops. Two of these vessels are to be constructed at Balboa and the third will be assembled at Cristobal from material fabricated at Balboa. Keels of all three of these vessels had been laid by the end of fiscal year 1944, and they will be completed some time during the fiscal year 1945.

A salvage depot, including a diving school had been organized as a unit of the mechanical division of the Panama Canal during the preceding fiscal year. This was placed in full commission on August 2, 1943. During the past year 27 employees of The Panama Canal and 9 enlisted men of the Navy were trained as divers and tenders. Various minor salvage jobs were completed during the past year using the personnel and facilities of the new salvage depot.

## ELECTRICAL REPAIR WORK

The principal activities of the electrical division are: The operation and maintenance of the power system; the operation and maintenance of telephone, telegraph, electric clock, fire alarm, printing telegraph, and railway signal systems; the operation and maintenance of the street-lighting system; and the installation and maintenance of electrical equipment as required by The Panama Canal and other government agencies, or by vessels undergoing repairs at the Canal terminals. Following is a comparison of the three principal classes of expenditures of the electrical division for the past three fiscal years:

	Fiscal year		
	1944	1943	1942
Electrical construction and maintenance work .....	\$2,863,306	\$4,046,604	\$4,627,231
Maintenance and operation of—			
Electric power system .....	1,039,388	1,182,345	1,265,905
Telephone system and railway signals .....	266,424	279,968	240,879

Further information concerning the principal construction projects undertaken and the operation of the power system are given on page 32 of this report, under the general heading of Canal Operation, while operating statistics of the telephone system are covered on page 61 under the operations of the Panama Railroad Co. The expenditures shown above include interdepartmental transactions. As an example, maintenance and repairs on the power system are performed by the electric work unit and the cost of this work is therefore included in the expenses of both the power system and the electric work units.

There has been a decided decline in the electrical construction and maintenance work during the past year. This decline may be attributed entirely to the completion of many construction and improvement projects on the Canal Zone. During the past year, however, there has been a sharp increase in the amount of electrical repair work performed for naval and other ocean-going ships.

#### PURCHASE AND INSPECTIONS IN THE UNITED STATES

The principal purchases of supplies for The Panama Canal were made, as heretofore, through the Washington Office of The Panama Canal; the volume of the purchases is indicated by the following table:

	Fiscal year		
	1944	1943	1942
Number of purchase orders placed .....	8,931	13,373	17,225
Value of orders placed .....	\$5,418,842	\$13,265,404	\$30,755,528
Number of disbursement vouchers prepared .....	20,884	28,703	25,358
Value of above vouchers .....	\$11,352,061	\$30,948,054	\$35,011,069
Number of collection vouchers prepared .....	708	484	415
Value of above vouchers .....	\$2,206,937	\$3,822,004	\$1,370,014
Cash discounts taken .....	\$40,757	\$90,566	\$154,859

#### STOREHOUSES AND SHIPS CHANDLERY

In addition to the main function of requisitioning, storing, and issuing general supplies for the Canal and Railroad (exclusive of the merchandising operations of the commissary division) the Panama Canal storehouses sell ships' chandlery and other supplies to commercial shipping as well as to units of the United States Army and Navy. The following figures show the material and supplies cleared through the stores accounts during the past 3 years:

General storehouses	Fiscal year		
	1944	1943	1942
Gross revenues—sales and issues .....	\$17,040,252	\$21,316,977	\$31,395,349
Cost of materials, plus operating expenses .....	16,997,995	21,297,328	31,357,714
Net revenue .....	42,257	19,649	37,635
Inventory as of June 30th <sup>1</sup> .....	10,834,536	13,434,960	8,110,409

<sup>1</sup> This includes all material and supplies of The Panama Canal, by far the greater part of which is in the general storehouses.

## OBSOLETE AND UNSERVICEABLE PROPERTY AND EQUIPMENT

During the year disposition was made by sale, or by destruction where the items had no money value, of obsolete or unserviceable property and equipment which had an original value of \$676,259. Replacements were made as necessary.

## BULK PETROLEUM PRODUCTS

All deliveries of fuel oil, Diesel oil, gasoline and kerosene to and from storage tanks, for private companies and for The Panama Canal, and some deliveries for the United States Navy, are made through pipe lines and pumping plants of The Panama Canal. The following table summarizes the operation of the oil handling plants for the past 3 years:

	Fiscal year		
	1944	1943	1942
Fuel and Diesel oil:	<i>Barrels</i>	<i>Barrels</i>	<i>Barrels</i>
Received by The Panama Canal.....	505,950	450,846	530,759
Used by The Panama Canal.....	411,491	471,366	463,443
Sold by The Panama Canal.....	29,346	34,706	47,544
Miscellaneous transfers on tank farms.....	24,643	34,240	29,102
Pumped for outside interests.....	23,659,364	20,512,062	11,573,369
Total barrels handled.....	24,630,794	21,503,220	12,644,217
Handled at Mount Hope (Atlantic side).....	11,886,897	13,767,378	7,510,902
Handled at Balboa (Pacific side).....	12,743,897	7,735,842	5,133,315
Total barrels handled.....	24,630,794	21,503,220	12,644,217
Number of ships discharging or receiving fuel and Diesel oil:			
Panama Canal craft.....	215	171	187
All others.....	2,431	3,057	2,596
Total.....	2,646	3,228	2,783
Gasoline and kerosene received:			
By The Panama Canal:	<i>Gallons</i>	<i>Gallons</i>	<i>Gallons</i>
Bulk gasoline.....	11,162,293	13,007,076	12,583,934
Bulk kerosene.....	2,612,310	3,219,988	2,066,378
By outsiders:			
Bulk gasoline.....	31,496,430	27,592,908	24,980,256
Bulk kerosene.....	1,709,148	2,490,852	1,855,602
Financial results of operations:			
Total revenues.....	\$1,548,701	\$1,617,781	\$1,181,822
Total expenditures (including cost of sales).....	1,179,789	1,129,620	1,070,164
Net revenues.....	368,912	488,161	111,658

## BUILDING CONSTRUCTION AND MAINTENANCE

The program of construction under way at the end of the 1943 fiscal year was continued in 1944. Maintenance was continued on existing buildings in use.

The principal projects of building construction for The Panama Canal and Panama Railroad Co. completed by the building division of The Panama Canal during the fiscal year 1944 were as follows:

*Ancon—Balboa.*—Annex and extension to machine-shop building No. 1, extension to sheet-metal shop, and auxiliary oxy-hydrogen

plant, mechanical division; alterations and extension to Ancon theatre and old clubhouse; bowling alley building; internes' quarters, Gorgas Hospital; truck and drum filling station; additional sheds for motor transportation division; lubricant storehouse; and theatre, La Boca.

*Cristobal*.—Shoe and tailor shop for clubhouse; silver theater; splinterproofing of oil storage tanks; dispensary and pharmacy building, ward and cafeteria building and admitting office, Colon Hospital; alterations and extension to filter building; electrical division field office; silver bleachers at Mount Hope stadium; cafeteria, mechanical division; and foundations and cooling tower, emergency power plant, Agua Clara.

*Pedro Miguel*.—Locks storehouse, Paraiso.

*Gatun*.—Salvage depot; gold clubhouse and theater; two switching stations; and silver theater.

*Corozal*.—Eighty-patient ward building, office building, and boiler plant for Corozal Hospital; and various buildings for quarantine station.

*Cocoli*.—Emergency power plant; dismantling and crating construction equipment; and garage for official equipment.

*Summit*.—Electrical division storehouse.

*Diablo Heights, Gamboa, Margarita*.—No new buildings.

In addition to the principal projects listed above, which were completed during the year for The Panama Canal and the Panama Railroad Co., several large projects were completed for the United States Army and Navy.

Expenditures in connection with the construction and maintenance of buildings declined about \$3,000,000 as compared with the preceding year. The cost of maintenance and repair work performed during the past year aggregated \$1,183,585, of which \$525,297 was expended on maintenance of quarters occupied by gold employees and \$183,484 on maintenance of quarters occupied by silver employees; the balance of \$474,804 was spent on all other maintenance work performed by the building division.

The total volume of construction and maintenance work for the past 3 years is summarized below:

	Fiscal year		
	1944	1943	1942
For Canal divisions:			
Repair and maintenance work .....	\$809,360	\$954,373	\$981,559
Construction work .....	3,101,859	5,145,956	8,249,126
For the Panama Railroad Co.:			
Repair and maintenance work .....	71,888	238,741	195,656
Construction work .....	81,233	157,604	611,277
For other departments of the Government, employees and others .....	1,841,357	2,467,049	628,721
Total .....	5,905,697	8,963,723	10,666,339
Total maintenance .....	1,183,585	1,624,647	1,342,613
Total construction .....	4,722,112	7,339,076	9,323,726
Total .....	5,905,697	8,963,723	10,666,339



## QUARTERS FOR EMPLOYEES

*Gold employees.*—No new quarters for gold employees were constructed during 1944 and the early building of additional gold quarters is not contemplated at this time. The demand for gold quarters has decreased considerably in the past 2 years because of a reduction in the number of employees due to the cessation of work on the Third Locks and the completion of major items of other construction work. Employees who had not established residence on the Canal Zone for their families prior to December 7, 1941, are now permitted to bring their families to the Isthmus.

On June 30, 1943, there were on file in all districts a total of 316 applications for original assignment to family quarters from regular employees, and on June 30, 1944, there were 283, a decrease of 33 from the previous year.

It is intended to continue the replacement of old quarters, although additional construction will be suspended until such time as materials become more readily obtainable than at present. The old quarters constructed prior to 1909 show increased deterioration each year, which necessitates increased maintenance expense. Several condemned quarters, the maintenance of which is borne by the occupants, are still in use.

No changes were made in the general regulations governing assignment and rental of quarters to American employees.

*Silver quarters.*—The operation of silver quarters was continued on the same basis as in previous years. There were no new silver quarters constructed during 1944 and, while new construction is contemplated, none has yet been scheduled for the coming year with the exception of alterations to the buildings at Camp Paraiso, which was transferred by the United States Army to The Panama Canal on June 1, 1944. After the completion of these alterations, quarters will be available at that location for 245 families and 120 bachelors.

Repairs were made and plumbing installed in 24 old silver family quarters, comprising 27 apartments, at Camp Bied, and the apartments were made available for regular assignment at increased rental rates. At Gatun one miscellaneous-type quarters building for silver bachelors was converted for occupancy by 24 silver families. At Camp Gatun and Cocoli, the labor barracks were closed due to the completion of construction projects and the consequent repatriation of all Jamaican and the majority of the Latin American contract laborers.

The demand for quarters from silver employees is still far in excess of supply. As of June 30, 1944, there were 2,758 applications on file for family quarters and 1,467 applications for bachelor quarters, a total of 4,225, as compared with 3,585 applications on file June 30, 1943.



## MOTOR TRANSPORTATION

The motor transportation division is charged with the operation and maintenance of motor transportation for the departments and divisions of The Panama Canal and Panama Railroad Co. The centralization of transportation facilities in this division and the requirement that it be operated on a self sustaining basis have been primarily for the purpose of supplying needed transportation at minimum cost to The Panama Canal and Panama Railroad Co. Repair work is also performed for employees and for contractors engaged in work for the Government in the Canal Zone. A large amount of heavy hauling in connection with various building and highway construction projects was accomplished during the year.

The public transportation system of privately owned busses under the supervision and control of the motor transportation division, which was necessitated by gasoline and tire rationing and the resultant curtailment in the operation of privately owned vehicles, continued to carry employees and their families in and between the various towns in the Canal Zone; 141 busses were operating in this service as of June 30, 1944.

Revenues of the division during the past year, including motorcar repair shop activities, totaled \$3,008,356 and the expenses \$2,951,276, which left a net revenue of \$57,080.

In the fiscal year 1944, 13 cars and trucks, 6 trailers and 2 motorcycles were purchased, and 76 cars and trucks and 2 trailers were retired. At the close of the fiscal year, 966 cars and trucks, 32 trailers and 8 motorcycles were on hand.

## PANAMA CANAL PRESS

The operations of the Panama Canal Press were continued under the same policies as heretofore. The printing plant carries stocks of materials, and prints such forms, stationery, etc., as are required on the Isthmus in connection with the operation of The Panama Canal and the Panama Railroad Co. This unit also performed some work for the United States Army during 1944, including the printing of Yank, the Army weekly newspaper.

The following is a summary of the financial operations of this plant during the past 2 years:

	Fiscal year	
	1944	1943
Gross revenues.....	\$492, 782	\$569, 780
Total output (including supplies not processed in the printing plant).....	486, 730	561, 896
Net revenue.....	6, 052	7, 884

## SUBSISTENCE

The subsistence section, which was set up on May 1, 1941, to provide meals for contract laborers brought to the Isthmus in connection with the large construction program, continued under the same policies as in the previous year. Operations were on a reduced scale, however, because of the repatriation of the majority of the contract laborers and the resultant discontinuance of the Cocoli and Gatun messes. The La Boco, Gamboa, and Camp Bierd messes are still in operation.

In the fiscal year 1944, a total of 6,811,458 meals or 2,270,486 rations were served by this unit, a decrease of 28 percent from the 3,168,992 rations served in the previous year. The decrease that took place during the past year was actually much greater than is indicated by the decline in total rations for the year; by the end of the year the number of meals being served was only about one-third of the number served in the first 6 months. The ration cost was \$0.400 in the fiscal year 1944 as compared with \$0.416 in the fiscal year 1943.

## REVENUES DERIVED FROM THE RENTAL OF LANDS IN THE CANAL ZONE

Rentals for building sites and oil tank sites in the Canal Zone totaled \$32,165 for the year as compared with revenues of \$32,517 for the fiscal year 1943. Rentals from agricultural land in the Canal Zone totaled \$7,564 as compared with \$8,207 for the preceding year. At the close of the fiscal year 756 licenses were in effect, covering 1,490 hectares of agricultural land within the Canal Zone. This is a reduction of 35 in the number of licenses as compared with the previous fiscal year and a reduction in the area held under licenses of 67 hectares. This reduction is largely the result of the policy adopted as a health measure in May 1935, that no more licenses for agricultural land be issued and that holdings under licenses previously granted shall not be sold or transferred.

**BUSINESS OPERATIONS UNDER THE PANAMA RAILROAD COMPANY**

The Panama Railroad Co. was incorporated in 1849 under the laws of the State of New York for the purpose of constructing and operating a railroad across the Isthmus. When the concession, rights, and property of the New French Canal Co. were purchased in 1904, the stock of the Panama Railroad Co. became the property

of the United States Government. Since the acquisition of the railroad by the United States, its corporate status has been preserved and the railroad has continued to function as a common carrier.

At the beginning of Canal construction work, by Executive order of the President of the United States, the Panama Railroad Co. was made an adjunct to The Panama Canal. Its operations are supervised by a board of directors functioning under the direction of the Secretary of War. As the operations of the railroad complement those of the Canal, the policy has been for the board of directors to elect the Governor of The Panama Canal as president of the Panama Railroad Co. Thus, the Governor of The Panama Canal is the administrative head of the Panama Railroad Co. This practice has insured complete coordination of the activities conducted by the two organizations.

As the activities of the railroad company are covered in detail in its annual report, only the major features of operation as they relate to Canal administration are covered in this section.

In addition to the operation of the trans-isthmian railroad, the business enterprises conducted by the Panama Railroad Co. include the following: The loading, unloading, storage, and transfer of cargo for shipping interests at the terminal ports; the operation of wholesale warehouses, retail stores, and subsidiary manufacturing plants engaged in the supply of food, clothing, and other essential commodities to governmental agencies and to employees and their families; and the operation of coaling plants, hotels, a dairy, and a laundry. Prior to the outbreak of war the company also operated a steamship line between New York and the Isthmus, but as the vessels of this line have been requisitioned by the Government, this function was inactive during 1944.

#### TRANS-ISTHMIAN RAILROAD

The railroad line operates between Colon, the Atlantic terminus, and Panama City, the Pacific terminus. In addition to those cities, the railroad serves all nearby activities of The Panama Canal. Gross revenues from the operations of the railroad proper (not including subsidiary business activities) during the fiscal year 1944 amounted to \$3,520,081. Revenue freight totaled 829,355 tons, as compared with 1,312,189 tons during 1943, a decrease of 482,834 tons.

Comparative statistics covering the significant features of railroad operations during the past 3 years are presented in the following table:

	Fiscal year		
	1944	1943	1942
Average miles operated, Colon to Panama.....	47.61	47.61	47.61
Gross operating revenue.....	\$3,520,081	\$4,738,504	\$4,915,925
Number of passengers carried:			
First-class.....	358,907	443,910	319,235
Second-class.....	487,840	702,989	558,893
Total.....	846,747	1,146,899	878,128
Revenue per passenger-train-mile.....	\$5.79	\$8.82	\$7.62
Revenue per freight-train-mile.....	16.30	14.22	13.42
Passenger train mileage.....	161,836	146,134	141,549
Freight train mileage.....	208,277	305,545	345,537
Work train mileage.....	4,079	8,117	3,098
Total train mileage.....	374,192	459,796	490,184
Switch locomotive miles.....	232,933	317,906	298,867

### RECEIVING AND FORWARDING AGENCY

This division handles the dock and harbor activities of the Panama Railroad Co. at the two terminals of the Canal. The following statistics summarize the results of operations for the past 3 years:

	Fiscal year		
	1944	1943	1942
Total revenue.....	\$3,364,189	\$4,388,212	\$3,934,304
Total cargo handled and transferred across docks.....	<i>Tons</i> 1,734,556	<i>Tons</i> 2,018,377	<i>Tons</i> 2,508,421
Cargo stevedored by Panama Railroad Co.....	673,209	854,110	1,145,186
Cargo ships handled.....	1,767	2,381	3,345
Banana schooners handled.....			449
Agency services furnished vessels.....	50	36	42

### COALING PLANTS

The volume of coaling-plant operations at Cristobal and Balboa for the past 3 years is shown in the following table:

	Fiscal year		
	1944	1943	1942
Gross revenues.....	\$1,308,907	\$1,875,602	\$1,414,120
Coal sold.....	<i>Tons</i> 59,750	<i>Tons</i> 77,906	<i>Tons</i> 127,644
Coal purchased.....	53,282	59,030	126,839



## REAL-ESTATE OPERATIONS

Real-estate operations of the Panama Railroad Co. are devoted to the management of the property owned by the company in the cities of Colon and Panama and buildings erected by the company in the Canal Zone. In pursuance to terms of the agreement concluded in Washington, D. C., in May 1942 between the Governments of the United States and the Republic of Panama, and of a Joint Resolution (Public Law No. 48, 78th Cong.), the Panama Railroad Co., on December 16, 1943, transferred to the Republic of Panama certain of the company's lands in the Republic of Panama, having an appraised value of \$11,759,956.00. On December 15, 1943, there were in effect 1,641 leases to Panama Railroad Co. property in the cities of Colon and Panama, of which 1,327 were in Colon and 314 in Panama City. As of June 30, 1944, there were in effect a total of 7 leases and 14 licenses, nominally covering Panama Railroad Co. interests in both cities. These figures included 7 licenses to lots located in the Panama Canal quarters section of New Cristobal, formerly carried as Panama Canal licenses, and 2 licenses to United States Government property in Panama City, which are administered by the Panama Railroad.

No Panama Railroad Co. land in Colon or Panama City was disposed of by sale during the year.

## TELEPHONE SYSTEM

The gross revenues from the operation of telephones, electric clocks, and electric printing telegraph machines were \$366,484.

During the year 1,303 telephones were installed and 1,283 were discontinued or removed, resulting in a net increase of 20 telephones for the year. At the end of the fiscal year 1944 there were in service 5,502 telephones, as well as 55 electric clocks and 36 automatic printing telegraph typewriters. Telephone calls handled through the automatic exchanges averaged 141,037 calls per day in 1944 and 155,690 per day in 1943 during the sample days tested. This represents an average of 25.6 calls per telephone per day in 1944, as compared with 28.4 in 1943.

On March 20, 1944, the new 100-pair trans-isthmian telephone cable was completed and placed in service. This cable was installed by Panama Canal forces except for the splicing, balancing, and final testing. These latter operations were performed by employees of the American Telephone & Telegraph Co. who were sent to the Isthmus for this purpose.

## COMMISSARY DIVISION

The primary function of the commissary division of the Panama Railroad Co. is to supply at reasonable prices food, clothing, and



household supplies to meet the needs of United States Government personnel and the various United States Government departments on the Isthmus. In carrying out this function the division operates wholesale warehouses and cold-storage plants as well as retail stores in each of the Canal Zone towns. Sales are restricted to agencies and personnel of the United States Government, except that ice, cold storage, food, and other essentials may be purchased by commercial steamships passing through the Canal or calling at its terminal ports.

### SALES

Net sales for the year totaled \$39,220,427, compared with \$46,-948,042 for the previous fiscal year. The value of merchandise on hand June 30, 1944, was \$5,767,525, compared with \$6,168,745 at the close of the fiscal year 1943. The ratio of sales to inventory indicates a theoretical stock turnover approximately every 8 weeks. The distribution of sales for the past three fiscal years is shown in the following table:

	Fiscal year		
	1944	1943	1942
U. S. Government (Army and Navy).....	\$9, 793, 040	\$19, 379, 638	\$12, 245, 622
The Panama Canal.....	4, 170, 701	4, 932, 976	4, 303, 862
The Panama Railroad Co.....	419, 719	593, 510	779, 143
Individuals and companies.....	2, 072, 333	1, 771, 385	1, 552, 484
Commercial ships.....	1, 596, 607	737, 061	543, 996
Employees.....	23, 183, 746	22, 486, 611	18, 297, 702
Gross sales.....	41, 236, 146	49, 901, 181	37, 722, 809
Less discounts, credits, etc.....	2, 015, 719	2, 953, 139	2, 301, 045
Net sales.....	39, 220, 427	46, 948, 042	35, 421, 764

### PURCHASES

Purchases during the year aggregated \$32,563,699, a decrease of \$10,037,211 from the previous year. The following tabulation shows the value of the various classes of merchandise purchased for the past three years.

	Fiscal year		
	1944	1943	1942
Groceries.....	\$8, 254, 247	\$8, 716, 892	\$8, 769, 410
Candy and tobacco.....	1, 185, 909	1, 135, 739	1, 090, 298
Housewares.....	1, 508, 613	1, 513, 607	1, 489, 100
Dry goods.....	3, 507, 543	5, 591, 027	3, 000, 521
Shoes.....	1, 431, 202	2, 006, 714	1, 149, 913
Cold storage.....	9, 319, 656	13, 815, 161	8, 865, 456
Raw materials.....	1, 881, 940	2, 642, 347	2, 517, 275
Cattle and hogs.....	1, 478, 063	1, 140, 892	892, 131
Milk and cream.....	361, 327	324, 032	+25, 524
Dairy products.....	3, 635, 199	5, 714, 499	3, 670, 049
Total.....	32, 563, 699	42, 600, 910	31, 870, 677

## HOTELS

The hotels Tivoli and Washington were operated by the Panama Railroad Co. without change of policy during the year. These hotels are an essential adjunct to the Canal, providing necessary accommodations for foreign visitors, American tourists, visiting Government officials, and others.

The gross revenue from hotels was \$957,374, compared with \$843,478 in 1943, and the number of guest days was 101,823, compared with 91,059 in 1943.

## MINDI DAIRY

The operation of the Mindi Dairy continued as in previous years. Milk production for the year was 441,910 gallons, compared with 425,077 gallons in the preceding year, an increase of 16,833 gallons. Fresh milk is furnished to the hospitals and, on doctors' prescriptions, to persons having preference, such as invalids, infants, and nursing mothers. The surplus remaining after these needs are met is supplied to employees, units of the Canal and Railroad organizations, and Army and Navy units stationed on the Isthmus.

## SECTION III

### ADMINISTRATION

#### DEPARTMENTS

The organization of The Panama Canal on the Isthmus embraces five principal departments, namely, operation and maintenance, supply, accounting, executive, and health. In addition, an office of The Panama Canal is maintained in Washington, D. C. The Panama Railroad Co., a Government-owned corporation conducting business enterprises on the Isthmus, is a distinct unit, yet it is closely affiliated with the Canal organization.

#### OPERATION AND MAINTENANCE

The department of operation and maintenance embraces functions related to the actual use of the Canal as a waterway, including the dredged channel, locks, dams, aids to navigation, accessory activities such as shops and drydocks, vessel inspection, electrical and water supply, sewer systems, roads and streets, hydrographic observations, surveys and estimates, and miscellaneous construction other than the erection of buildings.

#### SUPPLY

The supply department is charged with the acquisition, storage, and distribution of materials and supplies for The Panama Canal and Railroad; the maintenance and construction of buildings; the assignment of living quarters to employees and care of grounds; the operation of storehouses, fuel-oil plants, an experiment garden, and a printing plant; the supplying of motor transportation facilities to the various departments and divisions of the Canal and Railroad organizations; and the operation of messes for silver-roll contract labor.

#### ACCOUNTING

The accounting department is responsible for the correct recording of financial transactions of the Canal and Railroad; the administrative auditing of vouchers covering the receipt and disbursement of funds preliminary to the final audit by the General Accounting Office; cost keeping of the Canal and Railroad; the checking of timekeeping; the preparation of estimates for appropriations and the allotment of appropriations to the various departments and divisions; and the examination of claims.

## EXECUTIVE

The executive department embraces the office of the Governor and all general administrative activities. In this department are included the administration of police and fire protection, postal service, customs, shipping-commissioner duties, estates, schools, playgrounds, general correspondence and records of The Panama Canal and Panama Railroad Co., personnel records and management, wage adjustments, general information, relations with Panama, and the operation of clubhouses, restaurants, and moving picture theaters.

## HEALTH

The health department has jurisdiction over all matters pertaining to sanitation and public health within the Canal Zone and the cities of Panama and Colon, the operation of hospitals and dispensaries, and the enforcement of quarantine regulations.

## PANAMA RAILROAD COMPANY

The operations of the Panama Railroad Co. on the Isthmus are related closely to those of The Panama Canal. As the Governor of The Panama Canal is also president of the Panama Railroad Co., the heads of all departments, both of the Canal and Railroad organizations, report to him. The general administration of the composite organization is centered in the executive office, and the accounting work in the accounting department. The Panama Railroad and the business divisions of the Canal organization are billed for their proper shares of the general overhead expense.

## CHANGES IN ADMINISTRATIVE PERSONNEL

Appointments in official positions during the fiscal year 1944 were as follows:

Maj. Gen. Joseph C. Mehaffey, United States Army, was appointed Governor of The Panama Canal on May 16, 1944, vice Maj. Gen. Glen E. Edgerton, United States Army, relieved from duty with The Panama Canal.

Col. Francis K. Newcomer, Corps of Engineers, United States Army, was appointed engineer of maintenance on May 16, 1944, vice Maj. Gen. Joseph C. Mehaffey, United States Army, appointed Governor of The Panama Canal.

Brig. Gen. Henry C. Dooling, United States Army, was appointed chief health officer on March 1, 1944, vice Maj. Gen. Morrison C. Stayer, United States Army, relieved from duty with The Panama Canal.

Mr. Lew W. Lewis was appointed chief quartermaster, The Panama Canal and Panama Railroad Co., on July 22, 1943, vice Mr. Roy R. Watson, deceased.

Col. James G. Steese, Corps of Engineers, United States Army, was appointed assistant to the Governor on May 16, 1944.

Col. Albert C. Foulk, Air Corps, United States Army, was appointed chief, aeronautics section, on March 20, 1944, vice Col. Charles Sommers, Air Corps, United States Army, relieved from duty with The Panama Canal.

Col. William C. Dreibelbies, Medical Corps, United States Army, was appointed superintendent, Gorgas Hospital, on March 25, 1944, vice Brig. Gen. Henry C. Dooling, United States Army, appointed chief health officer.

Mr. Lewis B. Moore was appointed first assistant chief quartermaster, The Panama Canal and Panama Railroad Co. on July 26, 1943, vice Mr. Lew W. Lewis promoted to chief quartermaster.

Maj. Charles V. Sanders, Coast Artillery Corps, Army of the United States, was appointed assistant to the Governor on April 29, 1944.

Mr. William M. Whitman was appointed assistant general counsel on August 1, 1943, vice Mr. Ronald S. Hazel, resigned.

Lt. Comdr. Fred R. Draper, United States Naval Reserve, was appointed assistant to the superintendent, mechanical division, on July 2, 1943, vice Lt. William J. O. Prinsloo, United States Naval Reserve, relieved from duty with The Panama Canal.

Mr. John F. Phillips was appointed production superintendent, mechanical division, on January 1, 1944.

Mr. A. Oren Meyer was appointed chief, police and fire division, on July 1, 1943, vice Mr. Guy Johannes, retired.

#### CHANGES IN ADMINISTRATIVE ORGANIZATION

*Safety section.*—Effective July 1, 1943, the safety section was transferred from the organization of the special engineering division and set up as a separate section in the department of operation and maintenance, under the supervision of the engineer of maintenance, reporting directly to the military assistant to the Governor.

#### EMPLOYEES

The force employed by The Panama Canal and the Panama Railroad Co. is composed of two classes which for local convenience have been designated "gold" and "silver" employees. The terms "gold" employees and "silver" employees originated during the construction period of the Canal from the practice of paying common laborers and other unskilled or semiskilled workers employed in the Tropics in silver coin, while skilled craftsmen and those occupying executive,



professional, and similar positions were paid in gold coin, the latter group being recruited largely from the United States. Although all employees are now paid in United States currency, the original terms used to designate the two classes of employees have been retained for convenience. The terms "gold" and "silver" are applied also to quarters, commissary, clubhouse, and other public facilities.

The gold employees—that is, those carried on the gold pay roll—comprise those employees who are engaged in the skilled trades and in the executive, supervisory, professional, subprofessional, clerical, and other positions where education, training, and special qualifications are required. The force of silver employees is composed almost entirely of natives of the Tropics, a considerable number of whom are Panamanians. They are employed principally as laborers, helpers, and semiskilled workers on work which does not require the services of specially trained or qualified persons.

Responsibility for personnel administration in The Panama Canal is vested in the division of personnel supervision and management, executive department. The division's activities are separated into "gold" and "silver" subdivisions in accordance with the customary classification of employees of The Panama Canal.

#### GOLD EMPLOYEES

Starting in May 1944 the regular monthly force reports of The Panama Canal and Panama Railroad Co. have been compiled as of the last working day of the month. Prior to that they had been compiled as of the first Wednesday of the month. The distribution of the gold personnel on June 30, 1944, and on June 2, 1943, is shown in the following tabulation:

	June 30, 1944	June 2, 1943	Increase	Decrease
THE PANAMA CANAL				
Accounting department.....	288	304		16
Dredging division.....	371	477		106
Assistant engineer of maintenance:				
Electrical division.....	479	419	60	
Locks division.....	276	278		2
Municipal division.....	259	581		322
Office engineering division.....	117	176		59
Meteorology and hydrography section.....	10	10		
Executive department:				
Personnel division.....	133	155		22
Executive offices.....	145	156		11
Bureau of posts.....	83	177		94
Civil affairs and customs.....	58	59		1
Clubhouses.....	136	182		46
Collector.....	19	19		
Fire section.....	107	119		12
Magistrates' courts.....	7	7		
Paymaster.....	17	18		1
Police section.....	274	368		94
Schools and playgrounds.....	141	170		29
Fortifications.....	2	3		1
Health department.....	641	655		14
Marine division.....	223	208	15	
Mechanical division.....	1,825	1,755	70	

	June 30, 1944	June 2, 1943	Increase	Decrease
<b>THE PANAMA CANAL—continued</b>				
Special engineering division.....	86	380		294
Supply Department:				
Offices, chief quartermaster.....	24	28		4
Building division.....	163	235		72
District quartermasters.....	42	46		4
Experiment gardens.....	14	27		13
Motorcar repair shop.....	107	105	2	
Motor transportation division.....	103	192		89
Oil-handling plants.....	45	41	4	
Panama Canal Press.....	13	17		4
Storehouses.....	122	170		48
Subsistence section.....	7	17		10
Total, The Panama Canal.....	6,337	7,554	151	1,368
Net decrease.....				1,217
<b>PANAMA RAILROAD CO.</b>				
Railroad proper.....	133	186		53
Receiving and forwarding agency.....	120	172		52
Commissary division.....	356	412		56
Dairy farm.....	5	6		1
Hotels.....	17	19		2
Real-estate section.....	6	8		2
Total, Panama Railroad Co.....	637	803		166
Total force.....	6,974	8,357	151	1,534
Net decrease, total force.....				1,383

In line with the reduced heavy-construction activity throughout 1944, the gold force of the Canal-Railroad organization decreased by 1,383 employees (16.5 percent) from June 2, 1943 to June 30, 1944. The reduction in force was accomplished gradually and, where necessary, employees immediately affected were transferred to other divisions, thereby reducing the recruiting and employment problems. The divisions which showed the largest numerical declines were the special engineering division, the municipal engineering division, and the dredging division, in which an over-all decrease of 722 employees, one-half of the total decrease, was recorded. However, ten other divisions registered decreases of 20 percent and upward. Five units recorded increases during the year, but only two of these were of real significance. The electrical division force, which declined 19 percent in the fiscal year 1943, continued to decline through February 1944. In March, however, the division began to expand rapidly because of an increase in marine electrical work, and by the end of the year had a net increase of 14.3 percent over June 2, 1943. The mechanical division, which had expanded more rapidly than any other division in the preceding year because of the heavy work load of marine repair and other work involving skilled craftsmen, continued to be very active throughout 1944, and showed an increase of 4 percent in force as compared with June 2, 1943.

## RECRUITING AND TURNOVER OF FORCE—GOLD EMPLOYEES

The following table shows additions to and causes of separations from the gold forces of The Panama Canal and the Panama Railroad Co. during the past year:

	Panama Canal	Panama Railroad	Total
Additions.....	1,451	92	1,543
Separations:			
Resignation.....	1,165	107	1,272
To enter military service.....	808	71	879
Reduction in force.....	288	19	307
Termination of temporary employment or reassignment.....	117	2	119
Removal for cause.....	106	6	112
Retirement:			
Age.....	39	5	44
Disability.....	22	9	31
Optional.....	17	6	23
Disability—not qualified for retirement.....	20	1	21
Inefficiency.....	6	3	9
Transfer (to other departments of Government).....	7	—	7
Disqualified in trial period.....	3	1	4
Death.....	20	1	21
Total separations.....	2,618	231	2,849
Net separations.....	1,167	139	1,306

NOTE.—The above figures do not include 133 employments made on a part-time basis and 92 terminations of part-time and irregular employees; neither do they include 8 employments and 8 terminations of American citizens on the silver roll.

Based on an average aggregate gold force of 7,459 for the period covered, the 2,849 separations from all causes shown in the foregoing table represent a turnover of 38.2 percent. This is slightly lower than the 39.1 percent rate of turn-over in 1943 which was believed to be the highest rate experienced by the Canal-Railroad organization since the original construction period. When separations by reason of reassignment or expiration of temporary employment are excluded the turn-over rate is 36.6 percent for 1944 as compared with 37.8 percent for 1943; and when the separations due to reduction of force are also excluded, the rate for 1944 is 32.5 percent as compared with 32.1 percent for 1943.

A factor which probably had the effect of keeping turn-over in force at a high figure in 1944 was the application during 1944 of selective service registration to male citizens residing in the Canal Zone. A total of 879 employees terminated their services specifically to join the military forces in 1944. While many employees no doubt resigned for this purpose in 1943, the exact number is not known; but it is believed that the number was considerably lower than in 1944.

*Employment.*—During the past year recruitment in all divisions of the Canal-Railroad organization was necessary primarily for replacement purposes, particularly to replace losses to the military service. The principal recruitments were for the mechanical and electrical

divisions and these were necessary to maintain an adequate organization to handle marine repair work.

At the beginning of the fiscal year the War Manpower Commission issued orders restricting recruitment in the United States by individual Federal agencies, which implied that all agencies thereafter would place requisitions for necessary personnel with the United States Civil Service Commission, and that selections would be made by the Commission. However, in view of the employment conditions peculiar to the Canal organization, the War Manpower authorities authorized The Panama Canal to recruit through its own representatives in the field in cooperation with the United States Employment Service.

Although an attempt was made to maintain high qualifications standards, versatility of experience, and employment of persons with more than minimum requirements, the effect of the war on conditions in the labor market forced a lowering of recruitment standards in most occupational categories. It has been necessary to resort increasingly to the employment of male applicants in the higher age brackets and to the replacement of younger males by females. Recruitment in the field by Panama Canal representatives has assisted greatly in securing new employees of the highest possible qualifications under conditions prevalent in the labor market.

During the fiscal year all employees were transported to the Isthmus by airplane through embarkation ports of Brownsville, Miami, and New Orleans.

#### ADJUSTMENTS IN WAGES AND HOURS OF WORK

During the past year the rates of pay of postal employees with the exception of postmasters in the larger post offices, were adjusted following comparable adjustment in the rates of pay of employees of the Post Office Department in the United States. There were no other major changes in the rates of pay or hours of work of gold employees during the fiscal year.

#### SILVER EMPLOYEES

As stated previously, force reports of The Panama Canal and Panama Railroad Co. are now compiled as of the last working day of the month, whereas formerly they were compiled as of the first Wednesday of the month. The granting of sick and rest leave to silver employees has also made it desirable to effect some changes in the report pertaining to silver employees. Originally the force report data included only employees at work on the day the force count was made, the purpose of these figures being to determine the size of the actual working



force. As revised, the force report figures for silver employees now show all employees carried on the pay roll, including those temporarily not working. This change in the manner of compiling data materially effects force report figures in divisions having work of a fluctuating character, such as the receiving and forwarding agency, which employs a large force of laborers intermittently engaged in loading and unloading vessels at the dock.

Subject to the above qualifications the following table shows a comparison between the silver force of The Panama Canal and Panama Railroad Co. on June 30, 1944, and June 2, 1943, the figure for the receiving and forwarding agency on June 2, 1943, being an approximation of the total silver force on that date.

	June 30, 1944	June 2, 1943	Increase	Decrease
<b>THE PANAMA CANAL</b>				
Accounting department.....	6	7		1
Dredging division.....	1,811	2,510		699
Assistant engineer of maintenance:				
Electrical division.....	543	575		32
Locks division.....	924	815	109	
Municipal division.....	1,758	3,408		1,650
Office engineering division.....	107	119		12
Meteorology and hydrography section.....	25	24	1	
Executive department:				
Executive offices.....	80	78	2	
Bureau of posts.....	42	42		
Civil affairs and customs.....	2	4		2
Clubhouses.....	1,748	1,723	25	
Magistrates' courts.....	2	2		
Paymaster.....	3	2	1	
Police section.....	55	62		7
Schools and playgrounds.....	206	234		28
Health department.....	1,759	1,880		121
Marine division.....	896	613	283	
Mechanical division.....	2,285	2,268	17	
Special engineering division.....	62	78		16
Supply department:				
Offices, chief quartermaster.....	4	6		2
Building division.....	1,678	2,735		1,057
District quartermasters.....	638	692		54
Experiment gardens.....	169	455		286
Motorcar repair shop.....	130	137		7
Motor transportation division.....	400	512		112
Oil-handling plants.....	85	67	18	
Panama Canal Press.....	128	154		26
Storehouses.....	479	798		319
Subsistence section.....	143	408		265
Total, The Panama Canal.....	16,168	20,408	456	4,696
Net decrease.....				4,240
<b>PANAMA RAILROAD CO.</b>				
Railroad proper.....	550	699		149
Receiving and forwarding agency.....	2,693	3,283		590
Commissaries.....	3,233	3,415		182
Dairy farm.....	126	107	19	
Hotels.....	267	242	25	
Real estate.....	3	3		
Total, Panama Railroad Co.....	6,872	7,749	44	921
Net decrease.....				877
Total force.....	23,040	28,157	500	5,617
Net decrease, total force.....				5,117

As in the case of the gold force, decreased construction activity during 1944 resulted in substantial decreases in force in the majority



of the units employing silver workers. The over-all decrease in comparison with 1943 was 18.2 percent. The largest numerical declines were in the municipal engineering division, the dredging division, and the building division, although important decreases also occurred in other units of the supply department. Substantial gains in the silver force were recorded in only two divisions. The increase of 283 in the marine division was brought about by increased Canal traffic which necessitated the employment of additional tugs and an increase in the number of men required for handling lines of vessels transiting the Canal. The locks division silver force was higher by 109 than in the previous year, which was due to a holdover for clean-up purposes of employees used on locks overhaul, additional men required for painting emergency dams, handling heavy lines on large ships passing through locks, and performing rehabilitation work on dams and backfills following the completion of construction projects by the Army and municipal engineering division.

#### SILVER WAGES

Wages of employees on the silver roll bear no direct relationship to wages of corresponding classes of workers in the United States. As silver roll employees are for the most part natives of the Tropics, their wage scales are established at levels based on wages prevailing for tropical labor in the Caribbean area. There were no important changes in silver wage rates during the past fiscal year.

#### SICK AND REST LEAVE

Rest leave for silver employees was authorized by regulations issued June 12, 1942. The former regulations governing sick leave allowances were amended to authorize the granting of rest leave to alien employees not otherwise entitled to vacation leave privileges, providing they have 5 years or more of continuous service and an excess of 30 days sick leave to their credit. Sick leave is earned at the rate of  $1\frac{1}{4}$  days per month. A total of 22,668 sick leave payments were authorized during the fiscal year as compared with 25,050 during the previous fiscal year. A total of 3,259 rest leave payments were authorized in 1944 as compared with 1,783 in the previous year.

#### CASH RELIEF FOR DISABLED SILVER EMPLOYEES

Applications for relief under the act of Congress of July 8, 1937, averaging 19 per month, were received during the fiscal year 1944. The original regulations established during the latter part of the fiscal year 1938 for administering this relief were continued without material change.

The tables below show the disposition of all applications from employees of both The Panama Canal and the Panama Railroad Co. during the fiscal year 1944. The average cost per case and the monthly payment as of June 30, 1944, are also indicated.

	Panama Canal	Panama Railroad	Total
Applications on hand, July 1, 1943.....	9	3	12
Applications received during period.....	160	71	231
Total.....	169	74	243
Applications approved for payment.....	117	59	176
Applications suspended for various reasons.....	4	4	8
Applicants died before relief approved.....	2		2
Applications rejected for various reasons.....		2	2
Applicants ineligible because of limitations of the act.....	39	6	45
Applications not complete but in various stages of progress, June 30, 1944.....	7	3	10
Total.....	169	74	243

NOTE.—Removal from the rolls on account of the death or subsequent reemployment of cash relief recipients: Panama Canal, 51; Panama Railroad, 13.

	Number of cases	Monthly average payment per case	Monthly average payments
Panama Canal rolls.....	461	\$18.62	\$8,582
Panama Railroad Co. rolls.....	201	20.54	4,128
Total.....	662	19.20	12,710

Expenditures on behalf of The Panama Canal cash relief program are paid from annual appropriations for that purpose, while those of the Panama Railroad Co. constitute a continuation of the former plan of granting cash relief to the superannuated employees of that company and are paid by the Panama Railroad Co.

#### REPATRIATIONS

In 1934 an appropriation of \$150,000 was provided for the purpose of repatriating unemployed West Indians and their families who have rendered at least 3 years service with the United States Government or the Panama Railroad Co. on the Isthmus. During the fiscal year 1944 approximately \$3,971 was expended for the repatriation and rehabilitation of 64 former employees, accompanied by 43 members of their families, a total of 107 persons. To date a total of \$62,119 has been expended for repatriation of 853 employees accompanied by 750 members of family, a grand total of 1,603 individuals. The average cost per person for repatriation has been \$38.75, and the average cost per employee, \$72.82.

## CENTRAL LABOR OFFICE

The Central Labor Office program of The Panama Canal provides for eligibility control over applicants seeking employment with government agencies and private contractors operating on the Isthmus. The general decrease of employment activities is demonstrated by the comparative figures presented below, showing the total numbers of silver employees carried on the rolls of the various organizations as of June 1944 and June 1943:

	June 1944	June 1943
Panama Canal and Panama Railroad Co.....	23, 040	28, 339
Panama Canal contractors.....		158
Panama Canal Department (Army).....	5, 570	5, 248
Army service exchanges.....	1, 536	985
Division engineer (Army).....	7, 506	11, 410
Division engineer contractors.....	407	2, 235
U. S. Navy.....	5, 448	3, 026
U. S. Navy contractors.....	145	7, 432
Miscellaneous.....	662	124
Total.....	44, 314	58, 957

Because of the insufficient supply of qualified labor on the Isthmus, recruitment of contract workers from foreign countries continued through September 1943 and then was discontinued. All workers brought to the Isthmus during the past year were recruited in El Salvador, whereas in the previous year workers were also imported from the Republic of Colombia and from Jamaica, British West Indies. The only foreign recruitment office in operation, largely to handle repatriations, during the fiscal year 1944 was in El Salvador, and it was closed on June 30, 1944.

From the inception of the foreign recruiting program in 1940, a total of 19,675 contract workers have been brought to the Isthmus. Of this number 16,465 have been repatriated, leaving, as of June 30, 1944, a total of 3,210 still on the Isthmus. The following table shows figures for the different areas from which the workers were recruited:

	Number recruited	Number repatriated	Number remaining on Isthmus June 30, 1944
Colombia.....	2, 244	1, 998	246
Costa Rica.....	2, 248	1, 990	258
El Salvador.....	10, 183	7, 681	2, 502
Jamaica.....	5, 000	4, 796	204
Total.....	19, 675	16, 465	3, 210

## SAFETY PROGRAM

A safety section in the Canal-Railroad organization was established on April 26, 1940. The principal duties of the safety section are to

promote the application of safety measures in all subdivisions of The Panama Canal-Panama Railroad organization, and to develop and improve the programs of accident prevention for the organization as a whole. This is accomplished by various activities such as periodic inspections of field conditions, investigations of accidents, recommendations pertaining to safety matters, holding safety committee meetings in various divisions of the organization and interesting supervisory and other employees in the subject of accident prevention.

Normal experience has shown that during a period of expanding activities the increase in the number of injuries might be expected to be proportionately greater than the increase in hours worked. This would be a natural result of taking on large numbers of new and inexperienced workers unfamiliar with the hazards of their work, and to whom immediate working conditions are strange. Thus, it might have been anticipated that the accident rate for the Canal-Railroad organization would increase sharply during the recent period of expanded activity. However, because of the safety program launched near the start of the increase in work, the Canal-Railroad organization was able not only to prevent an increase but to effect a decrease in the rate of accidents.

The following statistics cover the accident rates for the Canal-Railroad organization for the four full fiscal years since institution of the safety program:

Year	Man-hours worked	Lost time accidents	Frequency rate <sup>1</sup>	Days lost time	Severity rate <sup>2</sup>	Fatalities
1941.....	72,725,000	5,750	79	214,170	2.94	21
1942.....	92,429,000	4,978	54	238,628	2.58	27
1943.....	94,325,000	3,585	38	230,914	2.45	28
1944.....	80,499,000	2,770	34	158,770	1.97	17

<sup>1</sup> Frequency rate is the lost time accidents per million man-hours worked.

<sup>2</sup> Severity rate is the days lost time per thousand man-hours worked.

The table below shows injury and death compensation benefits for the Canal-Railroad organization for each of the 4 years since the institution of the safety program, compared to the annual average for the preceding 23 years:

Yearly average	Injury compensation	Compensation per \$1,000 pay roll
23 years—1918-40.....	\$51,886	\$3.31
Fiscal year:		
1941.....	86,290	2.55
1942.....	98,830	2.21
1943.....	104,550	2.17
1944.....	120,037	2.58



Approximately two-thirds of the compensation payments now cover accidents that occurred in previous fiscal years and so the amount of such payments will not decrease during the next few years in proportion to the anticipated decrease in work load. Accordingly, because of the recent period of expanded activity the annual compensations and rates may be expected to be high for the next several years but these payments would have been materially higher had it not been for the great improvement in accident prevention evidenced by the data shown above.

The worst accident in the past fiscal year was the sinking of the tug *Chagres* in the Pacific entrance on August 3, 1943. Eight men were killed in this accident, which accounted for nearly half of the 17 fatalities during the past year.

#### PURCHASE OF WAR SAVINGS BONDS BY EMPLOYEES

The pay-roll deduction plan for the purchase of War Savings bonds was continued with great success throughout the year, the deductions for gold employees for the fiscal year 1944 amounting to \$3,993,772.25, as compared with \$2,855,300 in the preceding year. Employees responded substantially to the Third War Loan Drive (September 9 to October 2, 1943), the Fourth (January 18 to February 15, 1944), and the Fifth (June 12 to July 8, 1944), all of which were conducted during the fiscal year 1944. The Panama Railroad Co. and The Panama Canal led all Government agencies in the purchase of war bonds by the pay-roll deduction method and have been listed on the Interdepartmental War Savings Bond Committee's honor roll, the Panama Railroad Co. leading all other agencies and The Panama Canal being second. Percentage of employee-participation at the close of the year was 95.83 for the Railroad and 90.54 for the Canal employees, while percentage of the gross pay roll subscribed was 21.05 and 16.93, respectively.

By circular dated October 19, 1943, the pay-roll deduction method for the purchase of war bonds was extended to the silver employees, effective December 1, 1943, and as of June 30, 1944, a total of 2,456 silver employees were subscribing for bonds, the total amount of monthly deductions being \$17,531.25. The silver employees' plan is limited to monthly deductions in the amounts of \$6.25, \$12.50, and \$18.75.

#### EXPERIMENT GARDENS

The Canal Zone plant introduction gardens and experimental station were established in June 1923. The gardens, which include green-houses, nurseries, and experimental plantings, embrace approximately 125 acres of land, and are devoted to the propagation and cultivation of a wide variety of useful and ornamental plants from all parts of the



world, primarily for the purpose of determining their adaptability and value under local soil and climatic conditions, for general propagation on the Isthmus. This unit also designs and supervises all landscape work for The Panama Canal and Panama Railroad Co.

The volume of work handled by the landscape section of the gardens was considerably less in 1944 than it had been in the three preceding years. This was due principally to completion of the large program of landscape work in new Canal Zone towns and in Army and Navy reservations, as well as the practical completion of camouflage work for the Army and of soil erosion work.

During the year the regular long-range experimental work was continued. Experimental plantings were made of several new varieties of tomatoes, lima beans, sweet corn, cucumbers, and muskmelons with results indicating their adaptability to this climate. The operations of the nursery as a separate and self-supporting department of the experiment gardens has proved to be one of the important services which the gardens can render. Each year thousands of plants of species previously tried out under Isthmian conditions and found worthy of further propagation find their way into different parts of the Canal Zone, Panama, and neighboring countries. During the past year the demand for various varieties of citrus and avocado plants far exceeded the supply, and the nurseries are being enlarged to take care of the anticipated demands for next year.

Sales continued good at the Balboa sales store where the garden's products were made conveniently available to the public. Items sold included sweet corn, string beans, lima beans, okra, tomatoes, bananas, grapefruit, limes, lemons, mangoes, mangosteens, and such other products as were available.

#### CLUBHOUSES

The Panama Canal clubhouses, which are now operating on a self-supporting basis, comprise activities designed to provide at reasonable rates restaurant, motion picture, and other recreational facilities for Government personnel and their families. These activities have undergone considerable expansion during the current period of increased activity on the Isthmus. Since a large percentage of the personnel brought to the Isthmus in the past several years have necessarily come without their families, the problem of feeding them has devolved largely upon the clubhouses. Further, the clubhouse facilities are used extensively by members of the armed forces stationed on the Isthmus.

All of these factors produced much overcrowding in all the clubhouses, particularly in the larger ones located in the terminal areas

of Balboa and Cristobal. To meet this situation it became necessary to undertake a major program of expansion of the clubhouse facilities.

The most important addition to the clubhouse plant last year was the construction of a new gold clubhouse at Gatun. The former gold clubhouse at Gatun was a very old, large, frame building located on a hill near the Gatun locks. This building constituted a hazard to the defense of Gatun locks, and so was torn down very soon after the entry of the United States into the war in December 1941, except for a small part specially protected to house the restaurant. The town of Gatun did not have gold clubhouse facilities from that time until the new plant was opened on April 1, 1944.

During the past year several other improvements, planned or begun in prior years were completed. One of these was the new Balboa Bowling Center opened in September 1943. The Ancon motion-picture theater was enlarged, remodeled, and placed back in service in September 1943. New silver theaters were built in La Boca, Cristobal, and Gatun, as replacements for the silver theaters formerly located in the old frame clubhouse buildings in those towns, which had been fire hazards for some time.

During the fiscal year 1944 the business and revenues of the clubhouses remained at nearly the same level they had reached during the previous year, which has been a record high. Activity of the clubhouse chain is still six or seven times prewar levels.

### LEGISLATION

Among the laws enacted by the Congress during the fiscal year 1944 which relate to or apply to the Canal Zone or affect The Panama Canal and which are of importance or interest are those described below.

An act approved May 29, 1944, providing for the recognition of the services of certain civilian officials and employees, citizens of the United States, engaged in and about the construction of the Panama Canal.

An act approved April 4, 1944, amending the act of June 11, 1940, making it a misdemeanor to stowaway on vessels.

An act approved March 4, 1944, making it a misdemeanor to stowaway on aircraft and providing punishment therefor.

Legislation relating to the Canal Zone introduced during this fiscal year and still pending in Congress includes:

A bill (S. 1115) to provide for the exercise by the United States of certain jurisdiction over persons within areas in the Republic of Panama, the temporary use of which for defense purposes is granted to the United States.

A bill (H. R. 3952; S. 1644) for the relief of the families of certain employees of The Panama Canal who were killed in the marine accidents involving the tugs *Alhajuela* and *Chagres*.

A bill (H. R. 4307) to amend the Canal Zone Code retirement provisions so as to provide for the retirement at age 55 of an employee with 30 years' service on an immediate annuity having a value equal to the present worth of a deferred annuity beginning at the age of 60 years.

A bill (H. R. 3646) to amend section 42 of title 7 of the Canal Zone Code by increasing from 4 to 8 years the terms of the United States district attorney and of the United States marshal, was approved July 1, 1944.

#### CAPITAL ALLOTMENTS, FISCAL YEAR 1945

The appropriations for 1945 carried \$1,311,500 for improvements and betterments and for the replacement of worn-out or excessively deteriorated facilities as follows:

Auxiliary raw water supply, Pacific side.....	\$325, 000
Launch for Marine division.....	25, 000
Dredging division dock, Balboa.....	830, 000
Locomotive repair shelters, Gatun and Pedro Miguel..	70, 000
Sanitation building, Ancon.....	27, 000
Equipment for central dental laboratory.....	17, 500
Infirmary, Corozal Hospital.....	17, 000
Total.....	1, 311, 500

*Auxiliary raw water supply, Pacific side.*—This project covers the installation of 14,000 lineal feet of 30-inch, cement-lined, cast-iron pipe from Paraiso pump station to the Miraflores filter plant. It will provide the facility for delivering an additional amount of raw water to the Miraflores filter plant and permit increasing the output of that plant from the present maximum of 23,000,000 g. p. d. to 28,000,000 g. p. d. The new pipe line will permit independent operation of the two sources of supply (Chagres River and Gaillard Cut) which will give better operating characteristics, lower pressures, and lower pumping costs. Since it will follow a new route it will provide protection against an interruption to the Pacific-side water supply in the event of a break in the present raw water main on the narrow Panama Railroad causeway across an arm of Miraflores Lake, which might be washed out by a large flood.

*Launch for marine division.*—This appropriation has been provided to cover the cost of one Diesel-powered launch, 50 feet long, for parties boarding ships at harbor terminals. The new launch is to replace one that is 26 years old and which cannot be reconditioned to secure the essential dependability.



*Dredging division dock, Balboa.*—Approximately 2,500,000 cubic yards of material are dredged each year from the Canal south of Miraflores locks and from the port of Balboa. The drill boats and dredges performing this work require the services of approximately 50 auxiliary craft such as tug boats, oil and water barges, dump scows, pipeline tenders, watch boats, and launches. All these craft are serviced and dispatched from an inadequate makeshift mooring station north of Balboa inner harbor. In February 1941, the expanding demand for the existing permanent dock facilities by ocean-going vessels loading, and discharging cargo, and requiring wet-dock repairs, prohibited the further use of any part of these docks by the dredging division and necessitated the establishment of a temporary mooring station for the use of that division until the necessary appropriation could be obtained and the construction of a permanent dock with suitable auxiliary equipment completed. The dock to be built under this appropriation will be 500 feet long by 50 feet wide with reinforced concrete deck, a barge repair shed 100 feet long by 25 feet wide, and a field office 40 feet long by 20 feet wide, the two latter structures to be erected on the dock proper. Access to the dock will be provided by the construction of a road 520 feet in length. With the construction of these facilities the equipment of the dredging division in the Pacific entrance and Balboa inner harbor areas will be provided with adequate mooring and dock space.

*Locomotive repair shelters, Gatun and Pedro Miguel.*—This appropriation was made to cover the cost of building concrete shelters over existing towing locomotive repair pits at Gatun and Pedro Miguel locks. The Canal is equipped with 64 of these towing locomotives, 40 of which were acquired in 1914 and the remaining 24 added from time to time as the need developed. Prior to the outbreak of the war all necessary replacements and additions were constructed by the mechanical division. However, under present war conditions, the need for conserving materials and the difficulty of securing them, together with the very heavy work load on the mechanical division, precludes the construction of new locomotives and makes it necessary to continue to depend upon the present locomotives. To meet these conditions it has been necessary to make more extensive use of the existing repair pits and provide shelters for such of the pits as are not now equipped for protection against bad weather conditions.

*Sanitary building, Ancon.*—This appropriation was made to cover the cost of a new one-story building to be used for centralizing and providing additional space for the garbage collection and disposal activities of the health department. In common with all other municipal services, the volume of garbage handled has more than doubled as a result of the general expansion in the Canal Zone, and the growth

of the population in Panama. The present facilities for cleaning, repairing and maintaining the garbage cans and other refuse receptacles are located in a 20- by 15-foot open shed, while the office for time-keeping, checking, and dispatching duties is located in a small structure of reclaimed lumber under the wooden garbage loading platform at Ancon. These structures are of a makeshift nature and inadequate for continued use.

*Equipment for central dental laboratory.*—This appropriation was made to defray the cost of equipment required to establish a central dental laboratory, which will permit the Canal Zone dentists to provide prompt and adequate dental service to the public. Space for the laboratory is already available in an existing building and funds were appropriated only for the purchase and installation of the necessary equipment. Under the present arrangement the district dentists have small work shops in their offices which are inadequately equipped, and a large part of the laboratory work must, in the end, be sent to laboratories in the United States for completion, with consequent delays, increases in cost, and frequent errors in manufacture. The establishment of the laboratory will permit the dentists to provide special dental appliances as required, and will improve the quality and quantity of the dental work performed and reduce its cost. The volume of work to be handled by the laboratory is expected to remain at a high level indefinitely, so that revenues derived from the work will enable the laboratory to meet its operating costs.

*Infirmiry, Corozal Hospital.*—Corozal Hospital is primarily an institution for the care and treatment of the mentally disturbed, but at present approximately 100 of the inmates are senile, chronics, or cripples, most of whom are suffering from organic diseases which require special care and attention from time to time. Inasmuch as the hospital is designed for mental cases no facilities for the treatment of other than mental ailments are available for these patients and they must therefore be transferred to Gorgas Hospital whenever the necessity arises for ordinary medical treatment. The addition of these cases to the already greatly over-crowded wards of Gorgas Hospital further strains the facilities of that institution and the movement adversely affects the patients. As the majority of the cases are of a nature that could be adequately treated at Corozal if proper facilities were available, an infirmiry for that purpose will be provided by enclosing the space under the wing of an existing ward building. This project will afford space for 32 patients, as well as for nurses' and attendants' offices.



## SECTION IV

### GOVERNMENT

The civil government of the Canal Zone is conducted as prescribed in the Panama Canal Act of August 24, 1912, and subsequent acts and Executive orders applicable to the Canal Zone. Whenever practicable, governmental functions have been assigned to departments in the organization established for the operation and maintenance of the Canal. Complete cooperation and increased efficiency are derived from such coordination of functions.

Date on expenses and revenues of various features of Canal operation and government are contained in the financial and statistical statement in section V of this report.

### AREA OF THE CANAL ZONE

The total area of the Canal Zone,<sup>1</sup> with areas segregated for various purposes, is shown as of June 30, 1944:

#### LAND AREA

Military and naval reservations (inclusive of revocable license areas):	<i>Square miles</i>
Military reservations.....	87. 23
Naval reservations.....	12. 02
Total.....	99. 25
Canal Zone townsites and areas in active use.....	15. 69
Miscellaneous assigned land areas:	
Barro Colorado Island.....	5. 71
Forest preserve.....	5. 47
Cattle pastures.....	41. 80
Commercial leases.....	. 44
Third locks project.....	. 72
Total.....	54. 14
Remaining usable land.....	177. 77
Swamps.....	15. 16
Total land area of the Canal Zone.....	362. 01

#### WATER AREA

Total water area of the Canal Zone (inclusive of Madden Lake to the 260-foot contour).....	190. 94
Total area of the Canal Zone.....	552. 95

<sup>1</sup> Not inclusive of noncontiguous areas, with the exception of Paitilla Point Military Reservation.

## POPULATION

A house-to-house canvass of the civil population of the Canal Zone was made by the police force during the month of March 1944. This canvass included civilian employees of the Army and Navy, and members of families of Army and Navy personnel, but omitted commissioned, warrant and enlisted personnel. In past years the canvass had been made during the rainy-season month of June, but in 1944 it was decided to make future canvasses during the dry-season month of March, to afford the enumerators easier access to the outlying areas. Further, in normal times the March canvass will be more accurate, since during the summer months many employees and their families are absent from the Isthmus on vacation.

The following is a summary of the population by districts:

	Americans			All others			Total
	Men	Women	Children	Men	Women	Children	
Balboa district .....	6, 580	4, 902	2, 928	9, 689	3, 515	3, 840	31, 454
Cristobal district .....	1, 655	869	782	6, 201	2, 949	3, 664	16, 120
Prisoners .....	16	-----	-----	183	2	-----	201
Total inhabitants, March 1944 .....	8, 251	5, 771	3, 710	16, 073	6, 466	7, 504	47, 775
Total inhabitants, June 1943 .....	11, 159	5, 462	3, 585	23, 543	6, 239	7, 402	57, 390

The population in March 1944 was 16.8 percent less than that shown by the canvass taken in June 1943. The Canal Zone population has been at abnormal levels in the past 4 years because of the large number of persons brought to the Isthmus to work on construction projects of the Army, Navy, and Panama Canal. Most of these projects have been completed since the 1943 canvass, and the sharp decrease in the 1944 population figures reflects the repatriation of a considerable number of the persons brought to the Isthmus in recent years.

In addition to the population shown above, in March 1944, 1,484 American employees and their families (472 men, 514 women, and 498 children) were residing in United States Government quarters in New Cristobal, Republic of Panama.

## PUBLIC HEALTH

Little change occurred in health conditions on the Isthmus with the exception of an epidemic of mumps which, continuing from the preceding year, gradually declined during the fourth quarter of the year to the normal expectation of sporadic diseases.

The two first-aid stations established in the mechanical division areas at Balboa and Mount Hope during the fiscal year 1943 continued in operation, but all other first-aid stations have been closed.

## VITAL STATISTICS

The morbidity and mortality rates from diseases and injuries, together with other vital statistics relating to the populations of the Canal Zone and the cities of Panama and Colon, are set forth in detail in the calendar year report of the health department, which is published annually in booklet form. For this reason, the data herein pertaining to vital statistics are limited to a brief resumé of the most important information.

*General death rate.*—The death rate for the Canal Zone is artificially low because employees generally leave the Isthmus after retirement. Moreover, prior to 1941 a large number of relatively young soldiers were included in the population figures on which the rates were computed. Below are shown death rates by yearly periods for the past five years:

*Death rate per 1,000 population—all causes*

	Calendar year				
	1943	1942	1941	1940	1939
Canal Zone.....	1 6.24	1 6.24	1 8.57	6.43	6.32
Panama City.....	10.49	10.62	11.43	11.50	11.93
Colon.....	12.11	12.13	15.00	11.04	11.57

<sup>1</sup> Omits Army and Navy personnel.

*Principal causes of death.*—The eight principal causes of death in each of the groups of population were as follows:

*Number of deaths and annual rate per 1,000 population—calendar year 1943*

	Canal Zone		Panama City		Colon	
	Number	Rate per 1,000	Number	Rate per 1,000	Number	Rate per 1,000
Organic diseases of the heart.....	57	0.99	125	1.00	82	1.74
Cancer of various organs.....	28	.49	74	.59	36	.77
Pneumonia.....	11	.19	133	1.06	49	1.04
Tuberculosis.....	25	.43	268	2.14	80	1.70
Apoplexy.....	16	.28	38	.30	31	.66
Nephritis (acute and chronic).....	22	.38	97	.77	45	.96
Diarrhea and enteritis.....	3	.05	77	.62	14	.30
Syphilis.....	14	.24	49	.39	21	.45

*Birth rate.*—Prior to the last 3 years the Canal Zone birth rate for whites as shown in the statistics was artificially low, since a large number of Army and Navy enlisted men were included in the population figures used in the computation of the rate. The colored birth rate is low because only colored employees who have more than the average length of service, and hence are in the older age group,

can obtain quarters in the Canal Zone. The birth rates for both classes in the calendar years 1943, 1942, and 1941 are not directly comparable with those shown in the table below for earlier years because the population base for white births has omitted Army and Navy personnel since 1940, and because the colored population has been inflated by the influx of laborers without their families, imported for construction work.

The following table shows the birth rates in the Canal Zone and the terminal cities of Panama and Colon for the past 5 years:

*Live birth rate per 1,000 population*

	Calendar Year				
	1943	1942	1941	1940	1939
Canal Zone:					
White.....	<sup>1</sup> 27.21	<sup>1</sup> 23.08	<sup>1</sup> 24.75	8.98	7.51
Colored.....	15.25	13.07	15.80	19.24	14.90
Combined.....	19.48	16.65	19.10	12.56	10.76
Panama City.....	34.06	30.38	29.60	28.09	28.34
Colon.....	34.32	27.38	27.20	25.41	25.02

<sup>1</sup> Population base excludes Army and Navy personnel.

*Death rates among children under 1 year of age.*—The following table shows the infant mortality rates per 1,000 births for the past 5 years:

*Deaths of infants under 1 year of age per 1,000 live births*

	Calendar year				
	1943	1942	1941	1940	1939
Canal Zone:					
White.....	24	22	51	40	31
Colored.....	51	53	61	69	87
Combined.....	38	38	56	56	65
Panama.....	73	79	89	94	91
Colon.....	65	79	97	98	77

### MALARIA

The rates for malaria among employees only for the past 10 years are shown below:

Calendar year	Rate per thousand	Calendar year	Rate per thousand
1934.....	16	1939.....	14
1935.....	15	1940.....	17
1936.....	12	1941.....	14
1937.....	12	1942.....	25
1938.....	10	1943.....	15



There was one death from malaria among employees during the calendar year 1943.

#### HOSPITALS

The number of patient days in Panama Canal hospitals for the past three fiscal years was as follows:

	Fiscal year		
	1944	1943	1942
Gorgas Hospital.....	365,429	427,455	386,563
Corozal Hospital:			
Insane.....	98,198	107,886	96,050
Cripples and chronic medical and surgical cases.....	36,029	34,744	33,212
Colon Hospital.....	47,048	46,049	44,019
Margarita Hospital.....	22,348	18,269	495
Palo Seco Leper Colony.....	42,426	42,288	43,529
Total.....	611,478	676,691	603,868

#### QUARANTINE AND IMMIGRATION

There was an increase both in ship and in airplane traffic in the Canal Zone in 1944, as compared with the fiscal year 1943. The number of persons admitted and detained at the quarantine station on account of immigration laws decreased during the past fiscal year, since the majority of the silver contract laborers returned to their respective countries either prior to or during the fiscal year 1944.

Nearly twice as many ships were fumigated in the fiscal year 1944 as in the previous year. The spraying with insecticide of all airplanes arriving from South American countries has been discontinued, and in its place Aerosol is being used, the latter being preferable to and more efficient than the former. The practice of taking the temperatures of passengers and plane crews arriving from South America was continued throughout the year.

The sanitary conditions of most of the South American ports remain about the same as in the previous year, with jungle fever, bubonic plague, and typhus fever continuing to be endemic in certain localities. A number of cases of typhus fever in Guatemala, and a few cases of smallpox in Venezuela and Colombia, have been reported.

Three ships arriving at Canal Zone ports were detained in quarantine during the fiscal year, one having on board a case of acute cerebral spinal meningitis, one a case of poliomyelitis, and the third a case of suspected diphtheria. The patients were removed from the ships and precautionary measures were taken.

Immigration and departure control offices were installed in the new Canal Zone air terminal building during the year, to facilitate the handling of air traffic in the Canal Zone.

The following is a summary of transactions for the fiscal year 1944, together with the figures for the two preceding years:

	Fiscal year		
	1944	1943	1942
Vessels inspected and passed .....	3, 568	2, 844	3, 923
Vessels granted pratique by radio.....			36
Total.....	3, 568	2, 844	3, 959
Crew passed by quarantine.....	184, 946	146, 537	205, 136
Crew passed by radio.....			7, 251
Passengers passed at quarantine.....	53, 134	50, 823	112, 196
Passengers passed by radio.....			375
Total.....	238, 080	197, 360	324, 958
Airplanes inspected and passed .....	2, 656	2, 525	1, 619
Crew of airplanes inspected and passed .....	11, 345	11, 090	6, 601
Passengers of airplanes inspected and passed .....	36, 912	33, 623	20, 837
Total.....	48, 257	44, 713	27, 438
Vessels detained in quarantine.....	3	2	
Crew detained in quarantine on board of ship.....	175	105	
Passengers detained in quarantine on board of ship.....	55		
Passengers admitted to station on account of quarantine laws.....		1	
Number of detention days at station on account of quarantine laws.....		1	
Immigration cases admitted to station.....	2, 946	5, 331	6, 256
Number of immigration detention days.....	35, 399	73, 751	60, 739
Persons held for investigation and released.....	114	96	655
Persons deported under immigration laws.....	3, 533	4, 819	5, 798
Supplementary sanitary inspection of vessels.....	4, 695	3, 560	3, 337
Vessels fumigated.....	107	68	45

### MUNICIPAL ENGINEERING

Municipal work carried on during the year included the construction and maintenance of roads, streets, and sidewalks; the maintenance and operation of water and sewer systems; and miscellaneous construction jobs. In the past few years, a considerable amount of construction work has been performed by the municipal engineering division of The Panama Canal for the United States Army and the United States Navy, private contractors, and the divisions of The Panama Canal and the Panama Railroad Co. Only the major items of this work are commented upon in this report, although the value of the large number of smaller items aggregates several hundreds of thousands of dollars.

## WATER SYSTEM

Consumption of water for municipal uses and for sales to vessels during the past three fiscal years was as follows:

[Thousands of gallons]

	Fiscal year		
	1944	1943	1942
Canal Zone .....	7,919,237	7,980,664	6,568,126
City of Panama .....	2,909,916	2,666,519	2,432,916
City of Colon .....	1,388,098	1,191,134	1,014,392
Sales to vessels .....	230,744	201,627	193,650
Total .....	12,447,995	12,039,944	10,209,084

The following statement shows the quantity of water pumped at each of the pumping stations during the year, the average per month, and the cost of pumping per thousand gallons:

[Thousands of gallons]

	Total gallons pumped during year	Average gallons per month	Average cost per 1,000 gallons for pumping
Gamboa (intake) <sup>1</sup> .....	3,108,495	259,041	\$0.0175
Miraflores (relay) .....	3,366,333	280,528	.0141
Balboa (relay) .....	4,163,018	346,918	.0118
Paraiso (intake) <sup>1</sup> .....	4,972,578	414,382	.0125
Paraiso (relay) .....	219,190	18,265	.0299
Mount Hope (intake) .....	3,999,899	333,325	.0107
Agua Clara (intake) <sup>2</sup> .....	452,266	45,226	.0815
Monte Lirio (intake) .....	1,138	95	.5980
Frijoles (intake) .....	3,907	326	.3755
Madden Dam (intake) .....	17,916	1,493	-----
Total .....	20,304,740	1,699,599	-----

<sup>1</sup> Owing to a break in the raw water line near Summit, the main source of raw water for the last half of the year was the Canal at Paraiso.

<sup>2</sup> Agua Clara filtration plant was discontinued on Apr. 15, 1944, at which time the pumping plant was also shut down.

The usual maintenance work was performed on the pipe lines, reservoirs, filtration plants, and pumping stations during the year. In addition, regular maintenance work was performed on a number of special projects.

## EXPANSION OF WATER SUPPLY FACILITIES

Work on the expansion of water supply facilities as described in the previous annual reports was brought to completion during 1944, at a total cost of a little more than \$4,000,000, financed jointly by The Panama Canal, the United States Army, and the United States Navy. The enlarged system increases the rated water capacity from 15,500,000 to 23,000,000 gallons per day on the Pacific side, and from 10,500,000 to 14,400,000 gallons per day on the Atlantic side.

This project on the Atlantic side of the Isthmus was completed during the fiscal year 1944 with the installation of (a) two 5,000-gallon-per-minute pumps, together with necessary switchgear, piping and meter in Mount Hope pump station, to serve Fort Gulick Reservoir; (b) the completion of the enlarged Mount Hope filter plant, which involved the construction of four new filters for increasing the capacity of the plant to 14,400,000 gallons per day, modification of existing buildings, and the construction of a lean-to; and (c) the installation of a new 30-inch raw water line from Gatun Lake, near Fort Gulick, to the Mount Hope filter plant. This new raw water line, which roughly parallels and is cross-connected to the original 30-inch water line, is 14,600 feet long, and consists of cement-lined, cast-iron pipe. The carrying capacity of the new line is approximately 16,000 gallons per minute, and for the two lines approximately 24,000 gallons per minute. The new facilities were necessitated by the increased use of water on the Atlantic side.

#### SEWER SYSTEM

In addition to the regular maintenance work performed on the sewer system, considerable improvements were made to the Old Cristobal sewage pumping station. The latter project involved the removal of old pumps, reconstruction of the sump to provide a dry pit on the pump side, and the installation of new pumps and necessary auxiliaries.

#### ROADS, STREETS, AND SIDEWALKS

Regular maintenance work was performed on roads, streets, and sidewalks in the Canal Zone. Asphaltic macadam streets in the Ancon-Balboa area, most of which are 30 years old, had deteriorated to such an extent, because of their age and to the exceptionally heavy traffic in the past 5 years, that special surface treatment was required. Funds were not available for reconstruction and, accordingly, a surface treatment of cut-back asphalt and stone chips was applied to the roads in the worst condition. This treatment has been successful as a temporary measure and will be continued during the fiscal year 1945.

Other projects completed during the year included widening by 9 feet a section of Roosevelt Avenue extending from Corozo Street to Gorgona Road; widening to 40 feet a section of Balboa Road extending from the Balboa cold-storage plant to Roosevelt Avenue; resurfacing with rock-asphalt the 24-foot section of road from the Balboa cold-storage plant to Balboa circular drive in front of the commissary; and the reconstruction of a 750-foot section of Roosevelt Avenue in the vicinity of the Sosa Hill rock-crushing plant.



## SPECIAL ROAD PROJECTS

In addition to the regular improvement work performed under Panama Canal allotments, described above, the following special projects were carried forward with funds provided by other agencies of the Government:

*Gaillard Highway improvement project.*—This project consists of rebuilding or widening portions of Gaillard Highway to provide a minimum width of 24 feet over a section extending from Tivoli crossing to Paraiso junction and a minimum width of 22 feet from the Paraiso junction to Madden junction (new Gamboa Road). Funds for the project were provided by the Bureau of Public Roads.

The section from Tivoli crossing to Diablo crossing, 2 miles in length, was widened by a minimum of 6 feet, which necessitated lengthening the decks of the bridges over Rio Curundu and the Rio Maria Sala. Work on this section was started in March 1944, and was 80 percent complete by the end of the year.

The improvement of the section between the northern end of the Fort Clayton bypass and the junction of Paraiso Road included the relocation of a large part of the highway over Miraflores Hill, and required the excavation of 110,000 cubic yards for a cut at the top of the hill. This section will consist of a 24-foot wide, 8-inch thick, reinforced concrete pavement for a distance of 2.6 miles. The work was 45 percent complete at the end of the year.

The section of Gaillard Highway, 3.5 miles in length, from the junctions of the highway and Paraiso Road to the beginning of Madden Road, is being widened to 22 feet. At the end of the fiscal year 1944, 27 percent of this work had been completed.

*Bruja Road improvement.*—That part of Bruja Road extending from Miraflores Bridge to Nicobar Avenue, Cocoli, having a total length of 1.4 miles, was repaved. A temporary section of the road, approximately 0.3 mile long, crossing the site of the proposed new Miraflores locks, was repaired with rock asphalt, while the balance was paved with 8-inch reinforced concrete to a width of 30 feet. This project was financed jointly by the United States Army and The Panama Canal.

*Widening Gaillard Highway from Corozal to Cardenas River bridge.*—This project consisted of widening to 30 feet the existing 20-foot wide portion of Gaillard Highway from the Corozal cooks and bakers school to the beginning of the 530-foot lock asphalt section just south of Cardenas River bridge, and the replacement of this rock asphalt section with a 27-foot wide reinforced concrete pavement. The funds for this project were provided by the United States Army.

*Projects started last year.*—The 30-foot wide, 4,100-foot long, express highway between Ancon and Balboa, and the reconstruction of

Randolph and Diversion Road, on which work was started in 1943, were completed during the fiscal year 1944. Descriptions of these projects were included in the 1943 report.

#### OTHER HEAVY CONSTRUCTION ACTIVITIES

The 335-foot extension to dock No. 15, Cristobal, which started in fiscal year 1943, was completed and placed in service in June 1944.

#### TEST OF CUCARACHA ROCK FORMATION

A test for the Third Locks project was initiated during the year to determine the safe bearing pressures on Cucaracha rock of the type found north of the existing Miraflores locks. The test, which is still under way, involves excavating to the rock formation, constructing a 40- by 50- by 10-foot concrete block, and loading the latter with armor plate. Plates have been placed at a maximum rate of 547 tons per day.

#### CITIES OF PANAMA AND COLON

Regular maintenance work was performed on the water and sewer systems and the streets during the year. Several construction projects were completed, the principal ones being the repaving of 4 blocks of Justo Arosemena Avenue, Panama; the construction of a 3-by-3-foot box culvert and necessary connections on Forty-sixth Street, between Venezuela and Balboa Avenues; and the removal of the tramway line in Forty-sixth Street, Panama.

#### MISCELLANEOUS ACTIVITIES

*Sosa Hill quarry and rock crushing plant.*—Rock crushed during the fiscal year 1944 and sold to various departments and divisions of The Panama Canal, Panama Railroad Co., United States Army and Navy, Republic of Panama, and United States Government contractors and individuals totaled 240,875 cubic yards. This plant also produced 9,348 tons of asphaltic mixtures for resurfacing old roads and for the construction of new roads and streets.

*Central mixing plant.*—During the year 43,291 cubic yards of ready-mixed concrete and 2,691 cubic yards of dry batch (sand and rock) were produced and sold.

*Concrete pipe plants.*—Plants at Ancon and at Cristobal were operated for the manufacture of concrete pipe and half-section drain tile. During the year 17,970 lineal feet of pipe of various sizes, and 8,406 lineal feet of 14-inch reinforced half-section drain tile, were manufactured. This pipe is used chiefly by the municipal engineering division for sewer and drain pipe, but a considerable quantity was sold to the United States Army, the United States Navy, the Republic of Panama, and local concerns.

## PUBLIC ORDER

There was a decrease in the force of the Canal Zone police during the past year, corresponding to the general decline in activity in the Canal Zone. Police substations at the following areas under the Division Engineer, United States Army, were closed: Camp Escobal, Camp Butler, Camp Pina, Curundu, Camp Chiva, and Camp Harrison. There was a reduction of 103 men, or about 25 percent, in the police organization, the majority of whom were inducted into the armed forces.

Two-way radio telephone equipment was purchased during the past year, and a license for its operation was obtained from the Federal Communications Commission. Fifty-watt central station transmitters and receivers will be installed in the Balboa and Cristobal police districts, and 13 motorcars will be equipped with mobile transmitter and receiver units for use by patrolmen.

During the fiscal year 1944, 8,525 persons were arrested, a decrease of 13½ percent, as compared with the previous year. Statistics covering these arrests, with corresponding figures for the previous year, are given in the following table:

	Fiscal year	
	1944	1943
Male.....	<i>Persons</i> 7,879	<i>Persons</i> 9,488
Female.....	646	370
Total.....	8,525	9,858
Arrests made with warrants.....	848	1,006
Arrests made without warrants.....	7,677	8,852
Total.....	8,525	9,858
Residents of the Canal Zone.....	3,188	4,295
Residents of Panama.....	4,935	4,898
Transients.....	402	665
Total.....	8,525	9,858

There were 9,214 charges filed against persons arrested during the fiscal year of 1944, of which 8,811 were misdemeanors and 403 were felonies, the latter being 4.37 percent of the total offenses charged. The following were the principal causes of arrest:

Cause of arrest	1944	1943	Cause of arrest	1944	1943
Violation of vehicle traffic regulations.....	3,677	4,244	Repatriation.....	287	65
Loitering.....	794	925	Violation of immigration regulations.....	195	717
Trespassing.....	786	129	Violation of war emergency regulations.....	1	705
Petit larceny.....	609	540	All others.....	754	946
Intoxication.....	507	487			
Disturbing the peace.....	453	623	Total.....	9,214	10,481
Battery.....	352	385			
Fugitive from justice.....	292	228			

*Homicides.*—Ten cases of homicide were investigated by the coroner during the year, 6 of which were the result of motor vehicle accidents. Of the 10 offenders, 6 were charged with involuntary manslaughter, 1 with voluntary manslaughter, 2 with second-degree murder, and 1 with murder. One defendant was sentenced to 15 years in the penitentiary; 1 to 18 months in the penitentiary; 1 to 6 months in jail; and 3 to pay fines ranging from \$175 to \$500. Two of the defendants were found not guilty; the remaining 2 cases were pending at the end of the year.

*Suicides, and other investigations by the coroner.*—The coroner investigated 6 cases of suicide during the past year, of which 4 were by hanging, 1 by poisoning, and the other by shooting. Coroner's investigations were made in a total of 110 cases of deaths during the year, of which 18 were from vehicle injuries; 23 from accidental drowning; 26 from natural causes, and the remainder from other causes.

*Prisoners.*—A daily average of 103 prisoners served sentences in the jails of the Canal Zone during the year, and those physically able were employed on municipal work. In July 1943 there was a daily average of 144 prisoners as compared with 68 in June 1944.

Seventy-eight convicts were committed to the Canal Zone Penitentiary during the year, a decrease of 13 as compared with the preceding year. Sentences imposed on these convicts totalled 111 years and 7 months. Seventy-one convicts were discharged, leaving 122 in custody at the end of the year. Computed at standard rates of pay for common labor, the value of the labor performed by convicts during the year amounted to \$57,235. Of this, 23 percent represented the value of work performed in the operation, maintenance, and improvement of the penitentiary buildings and grounds, 53 percent on the penitentiary farm, and the remaining 24 percent on outside municipal work.

*Deportations.*—By order of the Governor, 56 persons were deported from the Canal Zone during the fiscal year, of whom 27 were convicts who had served sentences in the penitentiary and 29 were persons whose continued residence in the Canal Zone was regarded as undesirable.

#### TRAFFIC ACCIDENTS AND CONTROL

There were 764 traffic accidents reported during the year, or an average of 64 per month, compared with an average of 87 per month during the previous year. These accidents resulted in the deaths of



13 persons and injuries to 355 other persons. Following is a classification of the causes of these accidents for the past three fiscal years:

Cause	1944	1943	1942	Cause	1944	1943	1942
Negligent driving.....	468	604	781	Careless passengers.....	12	23	14
Reckless driving.....	127	206	311	Inexperienced driver.....	11	18	70
Careless pedestrian.....	70	95	99	All others.....	23	26	37
Intoxicated driver.....	35	45	39	Total.....	764	1,049	1,395
Defective vehicle.....	18	32	44				

Traffic lights were put in operation for the first time at two intersections of Canal Zone streets and roads during the past fiscal year. One light was installed at the intersection of Balboa Road and Roosevelt Avenue, Balboa, on October 13, 1943, and the other was installed at the intersection of Bolivar Highway and Randolph Road, Cristobal, on April 6, 1944. A traffic light had been in operation since May 1943 on Gaillard Highway at the approach to Miraflores Bridge. During April 1944 a survey was made of all traffic signs and road surface markings with a view to establishing uniform traffic controls throughout the Canal Zone.

### MAGISTRATES' COURTS

#### BALBOA

In the magistrate's court for the subdivision of Balboa, 11 civil and 5,216 criminal cases were handled during the past year, as compared to a total of 6,034 cases in the preceding year. Of the criminal cases, 4,762 resulted in conviction and 200 in acquittal, 97 were dismissed, and 157 were held for the district court. In 129 cases, imposition or execution of sentence was suspended and the defendants were placed on probation. Of this group 15 were rearrested for violating the terms of probation and detained to serve the sentences originally imposed. Total revenues collected during the past year were \$39,018.

#### CRISTOBAL

In the magistrate's court for the subdivision of Cristobal, 9 civil and 3,004 criminal cases were handled during the past year, as compared to a total of 3,354 cases in the previous year. Of the criminal cases, 2,751 resulted in conviction and 95 in acquittal, 83 were dismissed, and 75 were held for the district court. In 96 cases, imposition or execution of sentence was suspended and the defendants were placed on probation. Of this group, 3 were rearrested for violating the terms of probation and detained to serve the sentences originally imposed. Total revenues collected during the past fiscal year were \$24,058.

## PARDONS AND REPRIEVES

The pardon board, consisting of 5 members appointed by the Governor, acts in an advisory capacity in the consideration of requests submitted by prisoners for executive clemency. During the past year the board submitted recommendations to the Governor on 46 applications for executive clemency, including pardons, commutation of penitentiary and jail sentences, and withholding and revocation of orders of deportation. The Governor extended clemency in 14 of these cases. On March 7, 1944, Brig. Gen. H. C. Dooling was appointed to the pardon board to succeed Maj. Gen. M. C. Stayer, who was transferred from the Isthmus to other duty. No other changes in the membership of the board were made during the year.

## FIRE PROTECTION

During the past fiscal year, the number of fire stations operated by the Canal Zone fire section remained unchanged; those in operation included the 11 new emergency fire stations established in the fiscal year 1943.

During the past year 288 fires, 28 false alarms, and 17 emergency calls were reported. The following table classifies the owners who suffered property losses during the year, as compared with previous years:

	1944		1943	
	Number of fires	Property loss	Number of fires	Property loss
The Panama Canal.....	216	\$1,702	144	\$178,744
Panama Railroad Co.....	14	310	26	1,263
U. S. Army.....	17	3,831	21	90,678
U. S. Navy.....	5	5,260	8	17,267
Private (includes ships).....	36	10,899	91	13,932
Total.....	288	22,002	290	301,884
Total property involved.....	\$8,148,562		\$10,879,112	

No large fires causing substantial property losses occurred during the year.

## PUBLIC SCHOOLS SYSTEM

The public school system for white children includes nine elementary schools, grades 1 through 6; a junior high school, grades 7 and 8; a junior-senior high school, grades 7 to 12; a senior high school, grades 9 to 12; an apprentice school; and a junior college. Public schools for colored children include an elementary school, kindergarten through grade 6; an elementary school, kindergarten through grade 8; five elementary-junior high schools, kindergarten through grade 9; and a teacher-training normal school.

Enrollments in the white elementary and secondary schools have remained at a fairly stable level for the past 2 years. February enrollments are normally used for purposes of comparison, since February usually represents the enrollment peak. In February 1944, 2,992 pupils were enrolled in the white elementary and secondary schools, and kindergartens, as compared to 2,921 in February 1943.

Enrollment in the colored schools in February 1944 numbered 3,015 including 64 normal school students, as compared with 3,016 in 1943. Free school privileges are granted to children of alien employees of The Panama Canal and Panama Railroad Co. only when such employees reside in the Canal Zone.

For the past 5 years the average daily attendance has been as follows:

	Fiscal years				
	1944	1943	1942	1941	1940
White schools .....	2,828	2,632	3,144	3,296	2,798
Colored schools .....	2,748	2,783	2,804	2,725	2,686

NOTE.—This tabulation excludes enrollment in the Canal Zone junior college. The white school figure for 1944 includes 204 kindergarten pupils not included in 1940-43.

In addition to the above, 93 pupils were enrolled as regular and special day-time students in the Canal Zone Junior College in February 1944, as compared to 51 in February 1943. In addition to enrollments of regular day-time students, the extension division had 1,174 class enrollments at the Pacific and Atlantic centers for both semesters.

A total of 151 apprentices were enrolled in the apprentice school during the fiscal year ended June 30, 1944. Of these, 81 relinquished their apprenticeship during the year, 67 of whom entered the armed forces and the Merchant Marine. Of the remaining 70 apprentices, 13 completed their training and 57 were enrolled in the apprentice school at the end of the fiscal year.

During the past year it became necessary to use apprentices with 2 or 3 years' training in responsible positions that would normally have been filled by first-class mechanics. This led to a temporary suspension of the policy prohibiting the employment of apprentices as journeymen mechanics before the completion of their apprenticeships.

During the school year 1943-44 the white schools, not including the apprentice school, were in session 177 days and the colored schools 231 days. At the close of school in June 1944, 115 white teachers and 103 colored teachers were in regular employment in these schools.

While no additional important modifications were instituted during the past year, the general program of modification and adaptation begun in previous years to adapt the Canal Zone schools to the

exigencies of the war period, was continued. Enrollments were affected somewhat by students volunteering for service in the armed forces and by the extension of the Selective Service Act to the Canal Zone. During the year 26 high-school students and 21 junior-college students left school to join the armed forces.

Canal Zone white children continued to achieve above, and colored children below, United States norms provided for the standard tests used in the schools. In grades 2 to 8, on the basis of standard achievements tests administered, the average white pupil was 10.7 school months above and the average colored pupil was 6.2 school months below the average child of the United States. In the white high schools the median pupil scored at the sixty-second percentile on norms provided for the tests whereas in 1943 the median Canal Zone white high school pupil scored at the sixty-ninth percentile.

#### PLAYGROUND SECTION

The activities of the playground section, in addition to the physical and athletic curricula of the schools, include supervised play and recreational activities for the employees of the Canal Zone and for military and naval personnel stationed on the Isthmus. This section, maintained by appropriated funds, promotes and supervises such activities as physical education, playground activities, baseball, basketball, handball, football, tennis, boxing, fencing, archery, athletic meets, and other phases of recreational activity.

The appropriation for playground activities covers the salaries of physical directors and directresses, kindergarten teachers, and playground attendants, and also provides funds for the maintenance of playgrounds, playsheds, baseball and softball diamonds, tennis courts, running tracks, and similar facilities, and for the purchase of playground and physical education equipment. Some of the recreational activities are partially self-supporting, but they cannot be made wholly so without greatly curtailing their scope and thus lessening the benefits now being derived through their more extensive use.

In addition to the physical education program, the physical instructors and other personnel employed in the playground section conduct kindergartens for children of Government employees and furnish active leadership and guidance to such organizations as the Boy Scouts, Girl Scouts, Sea Scouts, etc.

The recreational facilities provided by the playground section are used extensively, not only by the civilian employees and their families, but also by the United States defense forces stationed on the Isthmus. Practically all facilities are now utilized to their capacity at all times. The cost of these physical and recreational facilities is more than repaid in increased efficiency and morale of the organization and in improved



general welfare and health of the entire Canal Zone population. There is ample justification for the continuation of reasonable expenditures such as have been made in the past.

### POSTAL SYSTEM

Eleven post offices were in operation by the Canal Zone Postal System at the end of the fiscal year 1944, as compared with 12 at the end of 1943. A new post office was opened at Curundu on September 1, 1943; while the post office at Camp Chiva was closed on May 31, 1944, and the one at Chagres (located in the silver section of Gatun) on June 30, 1944.

Operations for the past year are summarized and compared with the two previous years in the following table:

	Fiscal year		
	1944	1943	1942
<b>RECEIPTS</b>			
Sale of air mail postage.....	\$313, 192	\$411, 806	\$506, 838
Sale of all other postage stamps, postal cards, stamp books, etc.....	93, 481	124, 423	423, 277
Money-order fees.....	38, 342	62, 261	85, 970
Box rents collected.....	32, 076	33, 310	33, 502
Handling mail—other agencies.....	28, 013	26, 795	22, 068
Other receipts.....	4, 140	458	3, 175
Total receipts.....	509, 244	659, 053	1, 074, 830
<b>EXPENSES</b>			
Transportation charges for air mail.....	267, 839	406, 535	912, 585
All other charges and expenses.....	397, 707	443, 320	418, 534
Total expenses.....	665, 546	849, 855	1, 331, 119
Net deficit.....	156, 302	190, 802	256, 289
Transferred from postal savings interest account.....	200, 000		
Reported surplus (deficit).....	43, 698	(190, 802)	(256, 289)

The regular postal operations resulted in a deficit of \$156,302 during the past year. To cover this deficit the sum of \$200,000 was transferred from surplus Postal Savings interest reserve for fiscal year 1944. The surplus reserve had been built up in Postal Savings operations in prior years.

Prior to June 1, 1944, the Postal System paid to the United States Post Office Department \$6.90 a pound for transportation of air mail. This rate was calculated to approximate the total receipts from the sale of air-mail postage, leaving very little margin to cover operating expenses of the Canal Zone Postal System. Effective June 1, 1944, the United States Post Office Department agreed to a reduction in the air-mail transportation rate between the Canal Zone and the United States from \$6.90 to \$4.45 a pound. Based on the volume of business at the time this reduction was made, it is estimated that this will

effect a saving of \$6,000 a month to the Canal Zone Postal System, but this is insufficient to cover local expenses of handling air mail.

The rate of \$4.45 a pound is still greatly in excess of actual transportation payments made to commercial airlines by the United States Post Office Department for handling Canal Zone air mail. The system will continue to show a deficit from operations, unless a further substantial reduction is made in the air-mail transportation rate of \$4.45 a pound or unless the bulk of postal business reverts from air mail to regular mail.

Statistics relative to the operation of the Canal Zone Postal System for the past three fiscal years are covered in the following table:

	1944	1943	1942
Registered and insured articles dispatched:			
Official letters and parcels registered free .....	57, 930	73, 690	78, 038
Foreign registered letters .....	46, 400	67, 100	52, 950
Foreign registered parcels .....	194	218	440
Domestic registered letters .....	27, 878	32, 016	51, 993
Domestic registered parcels .....	534	250	147
Insured parcels .....	11, 054	10, 755	18, 748
Total registered and insured articles dispatched .....	143, 990	184, 029	202, 316
Registered and insured articles received:			
Registered articles .....	85, 655	119, 120	157, 223
Insured parcels .....	49, 026	81, 256	171, 779
Foreign parcel post .....	1, 974	2, 077	2, 860
Total registered and insured articles received .....	136, 655	202, 453	331, 862
Dispatches of mail by steamer—Cristobal:			
Dispatches made to the United States .....	108	87	266
Dispatches made to foreign countries .....	747	686	1, 131
Total dispatches made by steamer .....	855	773	1, 397
Dispatches received from United States .....	119	81	339
Dispatches received from foreign countries .....	522	490	883
Total dispatches received by steamer .....	641	571	1, 222
Dispatches of mail by steamer—Balboa:			
Total dispatches made .....	666	439	1, 105
Total dispatches received .....	838	745	1, 106
Dispatches of mail by air—Balboa:			
Total dispatches made .....	13, 887	16, 633	15, 181
Total dispatches received .....	14, 271	14, 896	11, 519

### IMMIGRATION VISAS

During the fiscal year 1944, 193 visas were issued by the executive secretary to alien residents of the Canal Zone traveling to the United States. Of these, 19 were quota immigration visas; 112 were non-quota immigration visas; 57 were nonimmigrant visas; and 5 were transit certificates. Fees collected for visas amounted to \$1,330.00.

### RELATIONS WITH THE REPUBLIC OF PANAMA

During the year, correspondence and discussions were conducted between the Governments of the Canal Zone and the Republic of Panama with reference to various matters of local joint interest

arising from the relations of the two Governments and the proximity of their respective areas. The establishment by the Panamanian Government in the Ministry of Foreign Relations of a Department of Relations with the Canal Zone, in charge of Mr. Eduardo Valdés, has been of great assistance in the prompt and efficient handling of these matters.

### CUSTOMS

Since the entrance of the United States into war, the Bureau of Customs of the Canal Zone has been charged with responsibility for the enforcement of the many additional restrictions placed upon travel and the movement of cargo, mail, and currency. It has also been assigned the duties of enforcement in the Canal Zone of many restrictions which in the United States are handled by the Department of the Treasury.

The following is a statistical summary of the more important items regularly handled by the customs during the past fiscal year, with corresponding figures for the two preceding years:

Item	Fiscal year		
	1944	1943	1942
Vessels entered.....	5,582	4,871	6,850
Vessels cleared.....	5,573	4,871	6,757
Aircraft entered.....	2,587	2,516	2,235
Aircraft cleared.....	2,591	2,513	2,232
Customs releases on shipments consigned to Panama.....	3,974	5,901	11,976
Shipments of household goods of employees, inspected and sealed for shipment to United States.....	123	151	208
Invoices certified for shipment to United States.....	2,732	1,207	1,240
Chinese passengers arriving.....	49	4	81
Chinese admitted to Panama.....	39	1	38
Vessels with Chinese crews checked.....	219	186	322

### SHIPPING COMMISSIONER

The shipping commissioner and his deputies have the same authority as shipping commissioners in United States ports and United States consuls in foreign ports with respect to United States seamen. During the fiscal year, 738 seamen were shipped in vessels of the United States and 667 were discharged. No sick or destitute seamen were returned to the United States at the expense of the appropriation for relief of destitute American seamen, but 94 were signed on vessels as work-a-ways, and returned to the United States without expense to the Government.

The total wages earned by seamen who were discharged at Canal Zone ports amounted to \$396,920 and the total approved deductions on account of advances, allotments, fines, slop-chest account, etc., amounted to \$191,795. The balance of \$205,125 either was paid to seamen under supervision of the deputy shipping commissioners, or was received on deposit for the seamen by the deputy shipping com-

missioners. The wages, moneys, and effects of three American seamen, two of whom died in the Canal Zone and the other at sea, were handled by the shipping commissioner, and remitted to the proper courts in the United States for disposition.

#### ADMINISTRATION OF ESTATES

The public administrator takes charge of all estates within the Canal Zone which require administration and are not handled by others legally entitled to administer them. In the case of estates with total assets exceeding \$1,000 in value, the public administrator charges the regular commissions fixed by law, which are paid into the Treasury of the United States. Commissions amounting to \$3,409 were collected during the fiscal year. The estates of 321 deceased or insane persons, with cash assets of \$79,057, were settled during the fiscal year.

#### FOREIGN CORPORATIONS

Foreign corporations doing business in the Canal Zone are required to secure licenses, and 120 such corporations, the majority of which were steamship lines, steamship agencies, and Government contractors, were licensed during the fiscal year 1944. Fees amounting to \$1,200 were collected.

#### INSURANCE

The license fee for insurance companies doing business in the Canal Zone is \$10 per year plus a tax of  $1\frac{1}{2}$  percent on premiums collected. At the end of the fiscal year 20 insurance companies were licensed to write insurance in the Canal Zone. Life-insurance companies reported that as of December 31, 1942, a total of 1,629 policies were in force. During the calendar year 1943, 223 policies were issued and 98 canceled, leaving 1,754, having an aggregate face value of \$6,295,007 in force as of December 31, 1943. Premium collections on life-insurance policies during the calendar year 1943 totaled \$224,557.

During the calendar year 1943 the premiums received by miscellaneous insurance companies, including accident, automobile liability, fire, surety, fidelity, etc., but excluding life insurance, amounted to \$542,772. Losses paid during the year totaled \$184,266.

The tax of  $1\frac{1}{2}$  percent on premiums by all classes of insurance companies amounted to \$12,355 for the calendar year 1943, as compared with \$15,326 during the previous year.

#### LICENSES

The number of motor-vehicle licenses and transfers during each of the past 3 years and the aggregate fees collected therefor are sum-



marized below. These include licenses for official vehicles for which no charge is made:

	Fiscal year		
	1944	1943	1942
Vehicle licenses issued.....	16, 753	20, 235	25, 696
Motor vehicle transfers.....	7, 213	9, 512	8, 846
Total.....	23, 966	29, 747	34, 542
Fees collected.....	\$94, 789	\$103, 741	\$121, 501

In addition to the vehicle licenses covered above, several other types of licenses were issued, such as chauffeur's licenses, peddler licenses, etc.

### SELECTIVE SERVICE REGISTRATION

By virtue of the President's proclamation of October 26, 1943, registration for selective service was required of male citizens of the United States outside the continental United States, Alaska, Hawaii, and Puerto Rico, who had not previously registered for selective service and who had attained on December 31, 1943, or thereafter attained their eighteenth birthday but had not attained their forty-fifth birthday. Registration of persons from 18 to 44 years of age was required to be accomplished during the period November 16 to December 31, 1943.

The executive secretary of The Panama Canal, was designated chief registrar and was charged with the responsibility of carrying out selective-service registration in the Canal Zone.

Two main registration offices were established at Balboa and Cristobal. Registration facilities were also provided in certain industrial areas and for the civilian employees of the United States Army, the United States Navy, and Government contractors residing in isolated communities. A total of 2,993 persons were registered during the period November 16 to December 31, most of the registrations being accomplished during the first week. Facilities continue for the registration of Canal Zone residents as they attain their eighteenth birthday.

### RATIONING PROGRAM

The general administration of the rationing program in the Canal Zone is conducted by the Canal Zone Rationing Board, which handles tires, automobiles, and bicycles, and by the Canal Zone Gasoline Rationing Board, which handles matters pertaining to gasoline. Each board has three members representing, respectively, The Panama Canal, the United States Army, and the United States Navy.

During the fiscal year the following gasoline rations were issued:

Automobiles:	
Basic A books.....	13, 054
Supplemental B books.....	1, 064
Motorcycles:	
Basic E books.....	456
Supplemental E books.....	1
Nonhighway E books.....	276
Certificates of authority to acquire gasoline.....	277

At the close of the fiscal year, 8,096 A books and 335 B books for passenger automobiles were in effect. A total of 960 applications for supplemental gasoline rations were received, of which 858 were approved and 102 rejected.

The following statistics summarize the rationing of other articles during the year:

Passenger car tires (new, obsolete and used).....	5,245
Truck and tractor tires.....	3,006
Passenger car and truck recaps.....	5,192
Tubes authorized.....	4,207
Automobile certificates issued.....	1
Bicycle certificates issued.....	239

The rationing of typewriters was discontinued by the Office of Price Administration effective April 22, 1944.

#### COMMERCIAL AVIATION

After the entry of the United States into the war, commercial aviation activities were transferred, at the request of the United States Army, from the Atlantic side of the Isthmus to the Pacific side. These activities have continued to be centered on the Pacific side with the exception of a temporary seaplane service which, because of operational difficulties and increased unit capacity was operated during the last 6 months of the fiscal year 1944 between Cristobal (on the Atlantic side of the Isthmus) and Miami, Fla.

A new service between the Canal Zone and New Orleans was established during the early part of the fiscal year 1944. The net effect of this new service was merely a redistribution of the former available passenger accommodations. The air carrier involved was required to distribute its four-engine equipment between two separate routes now existing, instead of the one which existed prior to the establishment of this service. No actual increase resulted in the available seats between the Canal Zone and the United States.

The new Canal Zone Air Terminal and its appurtenances, adjoining Albrook Field, constructed by the Corps of Engineers, United States Army, was turned over to The Panama Canal for operation during the early part of the fiscal year.

Tabulated below is a statistical summary of commercial aviation activities in the Canal Zone for the fiscal year 1944 as compared with 1943, 1942, 1941, and 1940:

*Number of passengers carried by regularly scheduled airlines*

	1944	1943 <sup>1</sup>	1942	1941	1940
<b>CANAL ZONE AND FOREIGN</b>					
Incoming.....	37,006	35,297	22,039	10,786	6,451
Outgoing.....	39,840	34,338	21,592	10,234	6,530
Total.....	76,846	69,635	43,631	21,020	12,981
<b>TRANS-ISTHMIAN</b>					
Embarked Albrook Field.....	(2)	(2)	1,887	2,413	780
Embarked France Field.....	(2)	(2)	2,101	2,175	486
Total.....	(2)	(2)	3,988	4,588	1,266

<sup>1</sup> Albrook Field only.

<sup>2</sup> None, due to restrictions on trans-Isthmian air traffic.

*Air express and mail (pounds)<sup>1</sup>*

	1944	1943	1942	1941	1940
Entered.....	2,315,401	2,878,636	991,300	270,838	88,752
Cleared.....	1,872,832	1,978,835	963,925	384,563	273,116
Total.....	4,188,233	4,857,471	1,955,225	655,401	361,868

<sup>1</sup> Figures do not include cargo which entered and cleared without being unloaded in the Canal Zone.

<sup>2</sup> This figure does not include weight of transfer mail handled by the air carriers which does not reach or pass through Canal Zone Post Offices.

*Aircraft entered (Albrook Field and France Field)*

	1944	1943	1942	1941	1940
	12,586	<sup>2</sup> 2,515	2,234	2,334	-----

<sup>1</sup> Includes marine aircraft which entered Folks River Marine Base, from Dec. 18, 1943, to end of fiscal year.

<sup>2</sup> Albrook Field only.

There was an increase in the passenger movement to and from the Canal Zone during the fiscal year 1944 over previous traffic. A definite decline occurred in the movement of air express in comparison with the fiscal year 1943. The space aboard aircraft which had been utilized during 1943 for air express and mail was used for passengers.

Air carriers operating into the Canal Zone have unquestionably exerted every effort to meet existing demands for air transportation but the demands have far exceeded the available seating capacity of the equipment available for service between the Canal Zone and the United States. Schedules of air carriers operating between the Canal Zone and the United States with the type of equipment available were in general insufficient throughout the year, and backlogs of passengers occurred frequently in the Canal Zone. It is not expected that this condition will improve until satisfactory steamship service is resumed, or until additional or larger aircraft equipment is made available for the present operators, or until additional air carriers are granted permits to operate into the Canal Zone from the United States.

## SECTION V

### FINANCIAL AND STATISTICAL STATEMENTS

Financial statements of major interest relative to the operation of The Panama Canal are presented in this section. These statements are abstracted from the annual report of the accounting department of The Panama Canal.

#### ACCOUNTING SYSTEM

Accounts are maintained in accordance with statutory rules and regulations and accepted principles of appropriation and fund accounting prescribed for governmental bodies. However, the activities being of a quasi-business nature, the accounting system has been adapted to conform as nearly as practicable to the principles and practices approved by the Interstate Commerce Commission and State boards regulating public utilities as well as to procedures followed by comparable industries in the corporate field.

For purposes of evaluating the investment, July 12, 1920, the date on which the Canal was formally declared open to commercial traffic by Presidential proclamation, was fixed as the close of the construction and development period of the Panama Canal.

Interest on the United States Treasury funds advanced up to July 12, 1920, amounting to \$128,991,063; the treaty payment of \$10,000,000 to the Republic of Panama in 1904, and the annual treaty payment aggregating \$2,000,000 to the Republic of Panama from 1913 to 1920 are considered as being construction cost and are so reflected in the capital investment account. Additions to the capital investment account are made from time to time by the inclusion of the cost of new capital additions; deductions are made of the amounts of assets withdrawn through sale and retirement of depreciated items.

Obligations for treaty payments of \$250,000 annually to the Republic of Panama are reflected in the operating accounts beginning with the fiscal year 1921. A provision in the Treaty of 1936 with the Republic of Panama increased the annual payments to \$430,000, retroactive to the fiscal year 1934, and operating accounts have been adjusted to reflect the increase payment.

Depreciation of depreciable property and equipment is charged to operations at accepted rates, the amounts so charged being accrued in offsetting valuation or depreciation reserve accounts. Using account balances as of the beginning of the fiscal year, accrued depre-



ciation is deducted from gross capital to establish the investment upon which interest return is calculated.

Subsequent to the fiscal year 1920, a potential capital interest return of 3 percent has been considered as an unrecorded charge to expenses in determining computed surplus or deficit, while net revenues before interest charges have been used to calculate the actual rate of return on net capital investment.

Based on the foregoing, the gross capital investment at the beginning of the fiscal year 1944 was \$688,551,762.17 which, after deducting depreciation of \$43,725,109.16, and Canal defense property and additional facilities (Third Locks) amounting to \$128,706,472.10, leaves a net capital investment of \$516,120,180.91. There was a net deficit of \$6,920,924.81 from operations of the Canal and a net revenue of \$1,553,294.06 from business operations, or a combined net deficit of \$5,367,630.75.

#### **OPERATIONS OF THE PANAMA RAILROAD COMPANY**

The results from the operations of the railroad proper and its various business units on the Isthmus are shown in detail in the accounts of the Panama Railroad Co. The detailed statement of revenue, expenses, and statistics for all railroad industries, changes in the capital account, and the results from operations of the steamship line appear in the annual report of the Panama Railroad Co. A review of these activities is presented in section II of this report under the heading "Business operations under the Panama Railroad Co."

#### **PANAMA CANAL OPERATIONS**

The major financial results of Panama Canal operations are presented hereinafter in tables Nos. 1 to 28, with supplementary comments and explanations.

The following is a list of all of the tables and bureau reports contained in the annual report of the accounting department. The tables and reports Nos. 29 to 58, inclusive, are not printed because they are concerned principally with details of operations which lack general interest, and their publication would be an unwarranted expense. The complete report for the accounting department, as well as those of the other departments and divisions, is on file at the office of the Governor or at the Washington Office of The Panama Canal. For purpose of reference, the complete list of tables and reports for the accounting department is printed below. Following the list are presented the major tables, Nos. 1 to 28 inclusive, with various notes of explanation.

## INDEX TO TABLES

Table  
No.

1. General balance sheet.
2. Canal general property.
3. Floating plant.
4. Business fixed property.
5. Business equipment.
6. Capital assets, depreciable and nondepreciable.
7. Public works, Republic of Panama.
8. Cash receipts and disbursements, appropriated funds.
9. Cash receipts and disbursements, custodial funds.
10. Accounts receivable registered and outstanding.
11. Stores (material and supplies).
12. Work in progress.
13. Deferred charges.
14. Capital investment.
15. Accounts payable.
16. Depreciation reserves.
17. Reserve for repairs.
18. Reserve for leave.
19. Deferred credits.
20. Income, expenses, and net revenues (current).
21. Revenues, expenses, and computed surplus.
22. Capital refundments (miscellaneous receipts and Canal appropriations).
23. Balance of revenues and refundments.

*Details of Operation for Profit and Loss*

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24. Canal revenues.
25. Canal earnings, expenses, and net expenses.
26. Business expenses, revenues, and profit or loss.

*Miscellaneous*

27. Balances in appropriation and fund accounts.
28. Funded reserves.

*Addenda Not Published*

29. Cost of dredging.
30. Cost of electric current.
31. Cost of water.
32. Postal service—Revenues, expenses, and surplus.
33. Postal service—Money-order funds balance sheet.
34. Postal service—Money orders issued and paid, 1907 to 1944, inclusive.
35. Clubhouse, postal money order and savings funds.
36. Panama Canal clubhouses—Balance sheet.
37. Panama Canal clubhouses—Income and expenditures.
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39. Pay-roll deductions.
40. War Savings bond sales—Pay-roll deductions and cash.
41. Silver quarters statistics.
42. Health department bills and miscellaneous bills.
43. Recapitulation of pay-roll deductions (silver employees).
44. Rent collections (gold quarters) from nonemployees.

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No.

45. Commissary coupons issued, sold, and honored.
46. Accounts payable registered—Panama Canal.
47. Accounts payable registered—Panama Railroad.
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49. Injuries and deaths, Panama Canal and Panama Railroad.
50. Injuries and deaths—Payments under various acts.
51. Damages to vessels.
52. Freight and cargo claims.
53. Shipments under "Government Losses in Shipment" Act.
54. Report of Canal accounting bureau.
55. Report of Railroad accounting bureau.
56. Report of commissary accounting bureau.
57. Report of claims bureau.
58. Report of pay-roll section, claims bureau.
59. Report of auditing bureau.
60. Report of coupon accounting bureau.
61. Report of general bureau (mail, files, and employees' bonds).
62. Report of inspection bureau.

TABLE No. 1.—General balance sheet, June 30, 1944

## ASSETS

## Capital assets:

Canal general property (table No. 2)---	\$499, 438, 393. 76
Floating plant (table No. 3)-----	9, 750, 190. 12
Canal defense property-----	66, 575, 181. 74
Additional facilities (third set locks)---	73, 368, 963. 55
Business fixed property (table No. 4)--	42, 039, 681. 55
Business equipment (table No. 5)-----	4, 910, 887. 76

Total capital assets (table No. 6)----- \$696, 083, 298. 48

Reimbursable capital expenditures: Public Works, Republic  
of Panama (table No. 7)----- 754, 384. 01

## Custodial funds:

## Special deposit funds:

Clubhouse funds-----	\$1, 193, 292. 02
Money-order funds-----	9, 635, 226. 58
War Savings bonds funds-----	49, 708. 91
Security deposit funds-----	2, 328, 772. 77

Total special deposit funds (see  
contra)-----

\$13, 207, 000. 28

Revenue due U. S. Treasury----- 183, 016. 35

Total custodial funds (table No. 9)----- 13, 390, 016. 63

## Working assets:

## Appropriated funds:

With U. S. Treasury-----	\$21, 788, 593. 51
With fiscal officers-----	11, 461, 826. 37

Total appropriated funds (table No. 8)----- 33, 250, 419. 88

TABLE No. 1.—*General balance sheet, June 30, 1944*—Continued

## ASSETS—Continued

## Working assets—Continued

Accounts receivable (table No. 10)-----	\$4, 988, 049. 74	
Stores (table No. 11)-----	10, 834, 535. 84	
Work in progress (table No. 12)-----	1, 345, 858. 68	
		<hr/>
Total working assets-----		\$17, 168, 444. 26
Deferred charges (table No. 13)-----		1, 937, 623. 43
		<hr/>
Total assets-----		762, 584, 186. 69
		<hr/>

## LIABILITIES

## Capital investment:

Net appropriations by Congress-----	\$572, 541, 619. 49	
Interest during construction-----	128, 991, 063. 00	
		<hr/>
Total capital investment (table No. 14)-----		\$701, 532, 682. 49
Special deposit accounts (see contra)-----		13, 207, 000. 28
Accounts payable (table No. 15)-----		3, 813, 969. 21
Reserve for repairs (table No. 17)-----		445, 615. 64
Reserve for leave (table No. 18)-----		2, 858, 648. 84
Deferred credits (table No. 19)-----		4, 492, 760. 78
Revenues and refundments:		
Net revenues to June 30, 1943-----	\$280, 006, 071. 46	
Prior years' adjustment (table No. 32)---	59, 127. 21	
		<hr/>
Net revenues to June 30, 1943, as adjusted-----	280, 065, 198. 67	
Operating deficit fiscal year 1944 (table No. 20)-----	5, 367, 630. 75	
		<hr/>
Total net revenues (table No. 21)-----	274, 697, 567. 92	
Canal depreciation (table No. 16)-----	26, 627, 656. 01	
Plant depreciation (table No. 16)-----	19, 109, 549. 56	
		<hr/>
Total-----	320, 434, 773. 49	
Less capital refundments (table No. 22)---	284, 201, 264. 04	
		<hr/>
Balance revenues and refundments (table No. 23)-----		36, 233, 509. 45
		<hr/>
Total liabilities-----		762, 584, 186. 69

The terms and arrangement of the foregoing balance sheet follow closely the generally accepted principles of corporate accounting, except as to the last item "Revenues and refundments." The statutes require that receipts for tolls, civil revenues, and net profits on business operations shall be covered into the United States Treasury, and relinquished from control of The Panama Canal.

Funds for current operating expenses and capital construction are appropriated by the Congress, and for accounting purposes are con-



sidered as provided from the tolls and other receipts covered into the Treasury. Practically all receipts other than those cited above are repayable to Canal appropriations, and may be reexpended, but as the Canal is deprived of tolls revenue, its principal source of income, the reexpendable receipts are insufficient to provide for operation and maintenance, thus requiring the Canal to submit its expenditure program annually to the Congress.

Total net revenues, appearing under the caption "Revenues and refundments," represent the accumulated operating earnings of the Panama Canal before capital interest charges. This net revenue, however, has been covered into the United States Treasury in the form of tolls and other receipts. It therefore follows that net capital refundments and net revenues earned will always be approximately the same, except for the fluctuation of unexpended appropriated cash and other working capital items.

These various fund requirements leave The Panama Canal balance sheet without an equivalent for the usual corporate "Surplus account," since any surplus is included in the tolls covered into the Treasury, by law. However, the equivalent for "Surplus account" is shown on table No. 21, which compares "Total net revenues" of \$274,697,567.92, appearing on the balance sheet, with the computed interest on the net capital investment, by fiscal years, beginning with 1921, but no interest charge against the Canal is actually made by the United States Treasury.

TABLE NO. 2.—*Canal general property, fiscal year 1944*

	Balance July 1, 1943	Additions and transfers	Retirements and transfers	Balance June 30, 1944
Channels, harbors, and basins:				
Balboa to Pedro Miguel.....	\$24,309,928.86			\$24,309,928.86
Pedro Miguel to Gatun.....	113,466,691.77			113,466,691.77
Gatun to Cristobal.....	12,829,445.51			12,829,445.51
Breakwaters:				
Naos Island.....	1,075,874.10			1,075,874.10
Colon:				
East.....	3,994,727.10			3,994,727.10
West.....	4,528,829.57			4,528,829.57
Locks:				
Miraflores.....	24,695,468.11			24,755,653.89
Storehouse, Paraiso.....		\$60,185.78		
Pedro Miguel.....	16,776,469.11			16,771,664.84
Shop Bldg. No. 3 (demolished).....			\$4,804.27	
Gatun.....	37,914,498.12			37,911,319.37
Shop Bldg. No. 50 (demolished).....			3,178.75	
Floating caisson.....	347,868.15			347,868.15
Towing locomotives.....	1,505,397.32			1,505,397.32
Dams:				
Miraflores.....	1,228,561.63			1,228,561.63
Pedro Miguel.....	457,302.32			457,302.32
Madden.....	9,773,003.98			9,773,003.98
Gatun.....	10,475,943.56			10,475,943.56
Gatun—Mindi Levee.....	148,974.22			148,974.22
Spillways:				
Miraflores.....	1,398,684.94			1,398,684.94
Gatun.....	4,323,538.02			4,323,538.02
Aids to navigation:				
Channel aids.....	627,656.80			627,656.80
Transit aids.....	24,191.04			24,191.04
Coastal aids.....	175,069.78			175,069.78

TABLE NO. 2.—Canal general property, fiscal year 1944—Continued

	Balance July 1, 1943	Additions and transfers	Retirements and transfers	Balance June 30, 1944
Aids to navigation—Continued				
Lighthouse depot	\$184,511.01			\$203,827.07
Improvements, lighthouse dock, Gatun		\$19,316.06		
Wharves and piers:				
Balboa (Nos. 14 to 19)	4,102,186.34			4,102,186.34
Gamboa	295,430.46			295,430.46
Cristobal (Nos. 6, 13, 14, 15)	3,217,696.84			3,563,181.04
Reconstruct Pier No. 13		1,076.61		
Extend Pier No. 15		344,407.59		
Drydocks:				
Balboa	3,645,313.06			3,645,313.06
Cristobal	672,437.70			672,437.70
Coaling plants:				
Balboa	2,034,568.35			2,034,568.35
Cristobal	3,679,797.59			3,679,797.59
Dredging division plant	978,625.09			1,002,075.16
Truck crane		15,250.07		
Excavator No. 8		8,200.00		
Ferry plants:				
Thatcher Ferry plant	1,168,601.38			1,168,601.38
Miraflores Ferry plant	66,242.15			66,242.15
Titles and treaty rights:				
Purchase price, New Panama Canal Co.	31,717,335.97			31,717,335.97
Treaty payment to Republic of Panama, 1904	10,000,000.00			10,000,000.00
Annual treaty payments to Republic of Panama, 1913-20	2,000,000.00			2,000,000.00
Relocation of Panama Railroad	9,800,626.46			9,800,626.46
Re-equipment of Panama Railroad	3,247,332.11			3,247,332.11
Depopulation, Canal Zone	2,701,016.24			2,701,016.24
General buildings and structures:				
Office buildings	2,139,263.89			2,139,263.89
Gorgas Hospital	2,152,089.06			2,214,609.57
Alterations, board of health labora- tory		1,433.19		
Construct mortuary building		1,930.76		
Construct wards No. 30 and 31, section E		3,479.81		
Construct quarters for internes		70,534.24		
Crematory building (demolished)			\$14,857.49	
Corozal Hospital	670,110.61			746,378.91
Construct 80-patient barracks		2,518.91		
Construct steam plant		38,501.32		
Construct office building		35,248.07		
Colon Hospital	532,785.62			724,227.77
Alterations, service building		23,203.96		
Construct admitting office		13,827.90		
Construct Gold dispensary and pharmacy building		49,026.29		
Construct temporary wards		1,927.64		
Construct ward building		1,396.72		
Construct ward and cafeteria build- ing		102,059.64		
Margarita Hospital	103,578.09			390,332.43
Addition		286,754.34		
Dispensaries	250,142.16			284,308.27
Convert Bldg. No. 314, Colon Hos- pital, to Silver Dispensary		34,166.11		
Palo Seco Colony	190,763.75			187,183.66
Bldg. No. 9 (demolished)			300.00	
Bldg. No. 23 (demolished)			3,280.09	
Quarantine stations	65,392.70			65,392.70
Other health department structures	130,720.64			130,720.64
Playgrounds	283,440.43			272,683.87
Tennis courts:				
Balboa (diverted to other use)			1,191.00	
Gatun (diverted to other use)			6,946.00	
Silver City (diverted to other use)			481.00	
Playshed, La Boca (diverted to other use)			500.00	
Observatory, Miraflores (transferred to schoolhouses)			1,638.56	
Post offices	238,468.34			238,468.34

<sup>1</sup> Original purchase price of \$40,000,000, less Panama Railroad capital stock and sales and transfers of property acquired.

TABLE NO. 2.—*Canal general property, fiscal year 1944—Continued*

	Balance July 1, 1943	Additions and transfers	Retirements and transfers	Balance June 30, 1944
General building and structures—Con.				
Schoolhouses	\$2, 570, 222. 31			\$2, 577, 266. 11
Junior college, section A, Balboa		\$5, 405. 24		
Observatory, Miraflores (transferred from playgrounds)		1, 638. 56		
Fire stations	121, 749. 77			121, 749. 77
Police stations	284, 387. 98			284, 387. 98
Prisons	57, 871. 45			57, 871. 45
Courthouses	187, 732. 73			187, 732. 73
Other buildings and structures	630, 172. 48			635, 446. 91
Convert P. A. A. building to air express terminal		6, 374. 43		
Bldg. No. 277, Ancon (sold)			\$1, 100. 00	
Permanent town sites	2, 174, 454. 60			2, 226, 482. 64
Ancon		39, 821. 28		
Balboa		9, 720. 09	1, 621. 85	
Corozal		1, 588. 45		
Cristobal		701. 83		
Margarita		26. 08		
Paraiso		1, 792. 16		
Roads, streets, and sidewalks	5, 771, 058. 59			5, 781, 987. 20
Ancon		117. 66		
Balboa		320. 36		
Corozal		7. 46		
Cristobal		41. 59		
Margarita		124. 85		
Paraiso		2, 572. 96		
Pedro Miguel		7, 743. 73		
Sewer system	900, 925. 35			910, 866. 01
Ancon		1, 696. 03		
Balboa		1, 233. 16		
Corozal		200. 36		
Cristobal		871. 21		
Margarita		2, 123. 63		
Paraiso		3, 816. 27		
Street lighting system	239, 672. 06			239, 672. 06
Interest during construction period	128, 991, 063. 00			128, 991, 063. 00
Total, Canal general property	498, 275, 910. 37	1, 202, 382. 40	39, 899. 01	499, 438, 393. 76
Canal defense property	61, 249, 498. 13	5, 325, 683. 61		66, 575, 181. 74
Construction, additional facilities	67, 456, 973. 97	5, 911, 989. 58		73, 368, 963. 55

TABLE NO. 3.—*Floating plant, fiscal year 1944*

	Balance July 1, 1943	Additions and transfers	Retirements and transfers	Balance June 30, 1944
Tugs and crane boats	\$2, 820, 558. 88			\$2, 978, 649. 46
Athajuela (reconstructed)		\$31, 846. 98	\$171, 756. 40	
Cardenas		590, 000. 00		
Chagres (sunk)			310, 000. 00	
Diablo		18, 000. 00		
Launches	832, 850. 06			877, 866. 58
Amberjack, new (part)		4, 409. 31		
Bobo, new (part)		2, 045. 18		
Frigate, new (part)		15, 616. 86		
Gaviota, new (part)		4, 926. 03		
Parrot, new (part)		17, 332. 18		
Skate, new (part)		14, 057. 81		
Starfish, new (part)		17, 036. 16		
Toucan II, new (part)		6, 572. 68		
Jucana (scrapped)			7, 019. 99	
Margarita (scrapped)			7, 465. 30	
Engines, spare (installed)			22, 494. 40	
Dredges	2, 550, 068. 51			2, 550, 068. 51
Dump scows	1, 651, 335. 81			1, 583, 332. 51
No. 135 (retired)			68, 003. 30	
Machine barges	1, 260, 218. 95			1, 260, 218. 95
Lighters	440, 977. 36			440, 977. 36
Launch repair barge	27, 763. 78			27, 763. 78
Anchor barge	31, 312. 97			31, 312. 97
Total, floating plant	9, 615, 086. 32	721, 843. 19	586, 749. 39	9, 750, 190. 12

TABLE No. 4.—*Business fixed property, fiscal year 1944*

	Balance July 1, 1943	Additions and transfers	Retirements and transfers	Balance June 30, 1944
Hydroelectric plant, Gatun	\$1,755,785.01			\$1,755,785.01
Diesel electric plant, Miraflores	1,897,730.97			1,969,232.85
One 2,500-kilowatt generator set		\$71,501.88		
Substations	1,583,843.33			1,598,843.33
Frequency changer set		15,000.00		
Transmission system	1,560,695.81			1,560,695.81
Distribution system	2,027,924.21			2,078,348.86
Ancon		2,489.26	\$9,668.79	
Balboa		26,718.98	15,000.00	
Corozal		1,484.06		
Cristobal		16,714.18		
Diablo		19,000.00		
Margarita		4,698.65		
Paraiso		467.47		
Rearrange switchgear		3,520.84		
Madden Dam system	1,728,152.54			1,728,152.54
Total, Electric Power System	10,554,131.87	161,595.32	24,668.79	10,691,058.40
Electric work	348,308.63			399,478.41
Alterations, Bldg. No. 14, Balboa			5,132.02	
Field office, Cristobal		56,602.50		
Marine electric shop, Cristobal			300.70	
	348,308.63	56,602.50	5,432.72	399,478.41
Zone water system	1,649,197.84			1,654,755.46
Miraflores pump station (transferred to Zone-Panama system)			52,826.08	
Pumps, Miraflores pump station (transferred to Zone-Panama system)			46,891.13	
Main:				
Balboa		4,415.76		
Miraflores-Pedro Miguel		26,345.34		
Distribution lines:				
Ancon		60,761.00		
Balboa		17,343.49	4,542.50	
Corozal		32.13		
Cristobal		61.56		
Margarita		448.83		
Paraiso		409.22		
Zone-Panama water system	3,284,288.41			3,417,420.97
Miraflores pump station (transferred from Zone system)		52,826.08		
Pumps, Miraflores pump station (transferred from Zone system)		46,891.13		
Pumps, Gamboa pump station		3,267.15		
Main, Morgan Ave., Balboa		30,148.20		
Zone-Colon water system	1,390,768.38			1,510,666.99
Pumps, Mount Hope pump station		12,560.26		
Enlarge Mount Hope filter plant		36,783.41		
Equipment, Mount Hope filter plant		12,897.90		
Main, Gatun Lake to Mount Hope filter plant		57,657.04		
Total, Water System	6,324,254.63	362,848.50	104,259.71	6,582,843.42
Municipal engineering work	123,218.12			123,218.12
Balboa shops	2,486,631.03			2,488,454.94
Bldg. 26-X, new		2,546.39		
Bldg. 26-X, old (demolished)			722.48	
Cristobal shops	580,866.47			580,866.47
Total, mechanical shops	3,067,497.50	2,546.39	722.48	3,069,321.41
Balboa fuel-oil plant	962,924.22			930,926.46
Fire protection			31,997.76	
Cristobal fuel-oil plant	1,335,322.16			1,253,114.90
Fire protection			22,134.75	
Tank 154 (old)			60,072.51	
Total, fuel-oil plants	2,298,246.38		114,205.02	2,184,041.36
General storehouses	1,687,546.02			1,687,550.40
Spare parts warehouse, Gamboa		4.38		
Motor transportation	156,774.00			188,736.75
Garage, Gatun		31,962.75		
Motor car repair shops	209,431.64			201,247.32
Bldg. No. 5063, Cristobal (demolished)			8,184.32	



TABLE NO. 4.—*Business fixed property, fiscal year 1944—Continued*

	Balance July 1, 1943	Additions and transfers	Retirements and transfers	Balance June 30, 1944
Building division	\$83,018.21			83,018.21
Gold quarters	14,430,421.22			\$14,498,247.29
New quarters:				
Ancon		\$2,463.51		
Balboa		100,658.70		
Corozal		2.60	\$42,564.68	
Furniture		38,638.50		
Alterations and improvements		47,619.12		
Transferred to silver quarters (Gatun)			72,891.68	
Old quarters retired:				
Ancon (demolished)			1,400.00	
Ancon (sold)			1,100.00	
Cristobal (demolished)			3,600.00	
Silver quarters	1,419,360.43			1,514,982.59
Alterations and improvements		15,295.00		
Conversion Army buildings, Paraiso		8,435.48		
Transferred from gold quarter (Gatun)		72,891.68		
Old quarters retired:				
Cristobal			100.00	
Gatun			800.00	
La Boca			100.00	
District quartermasters' supplies	48,480.69			48,480.69
Clubhouse business structures	783,759.80			767,457.18
Ancon Theater, old (retired)			16,302.62	
Total, business fixed property	41,534,449.14	901,564.43	396,332.02	42,039,681.55

TABLE NO. 5.—*Business equipment, fiscal year 1944*

	Balance July 1, 1943	Additions and transfers	Retirements and transfers	Balance June 30, 1944
Electric power system	\$328,682.90		\$6,654.81	\$322,028.09
Electric work	9,981.85			9,981.85
Municipal work	467,222.67	\$15,951.73	73,396.24	409,778.16
Mechanical shops	2,372,834.36	104,749.28	88,532.09	2,389,051.55
General storehouses	168,241.55			168,241.55
Motor transportation	1,210,214.79	102,973.94	76,352.12	1,236,836.61
Motor car repair shops	51,819.97	3,142.13		54,962.10
Building division	172,184.69	9,557.11		181,741.80
Panama Canal Press	130,397.73	5,367.40		135,765.13
District quartermasters' supplies	2,500.92			2,500.92
Total, business equipment	4,914,081.43	241,741.59	244,935.26	4,910,887.76

TABLE NO. 6.—*Capital assets, depreciable and nondepreciable, fiscal year 1944*

	Depreciable	Nondepreciable <sup>1</sup>	Balance June 30, 1944
Canal general property:			
Channels, harbors, and basins		\$150,606,066.14	\$150,606,066.14
Breakwaters		9,599,430.77	9,599,430.77
Locks	\$66,015,671.28	15,276,232.29	81,291,903.57
Dams:			
Madden	5,508,509.79	4,264,494.19	9,773,003.98
Other		12,310,781.73	12,310,781.73
Spillways	3,791,569.33	1,930,653.63	5,722,222.96
Aids to navigation	1,030,744.69		1,030,744.69
Wharves and piers	7,960,797.84		7,960,797.84
Dry docks	3,339,329.22	978,421.54	4,317,750.76
Coaling plants	5,714,365.94		5,714,365.94
Dredging division plant	1,002,075.16		1,002,075.16
Ferry plants	1,234,843.53		1,234,843.53
Titles and treaty rights		59,466,310.78	59,466,310.78
Office buildings	2,139,263.89		2,139,263.89
Gorgas Hospital	2,214,609.57		2,214,609.57
Corozal Hospital	746,378.91		746,378.91
Colon Hospital	724,227.77		724,227.77
Margarita Hospital	390,332.43		390,332.43

See footnote at end of table.

TABLE NO. 6.—*Capital assets, depreciable and nondepreciable, fiscal year 1944—Con.*

	Depreciable	Nondepreciable <sup>1</sup>	Balance June 30, 1944
Canal general property—Continued			
Dispensaries	\$284,308.27		\$284,308.27
Palo Seco Colony	187,183.66		187,183.66
Quarantine stations	65,392.70		65,392.70
Other health department buildings	130,720.64		130,720.64
Playgrounds	272,683.87		272,683.87
Post offices	238,468.34		238,468.34
Schoolhouses	2,577,266.11		2,577,266.11
Fire stations	121,749.77		121,749.77
Police stations	284,387.98		284,387.98
Prisons	57,871.45		57,871.45
Courthouses	187,732.73		187,732.73
Other buildings and structures	635,446.91		635,446.91
Permanent townsites		\$2,226,482.64	2,226,482.64
Roads, streets, and sidewalks		5,781,987.20	5,781,987.20
Sewer system		910,866.01	910,866.01
Street-lighting system		239,672.06	239,672.06
Interest during construction period		128,991,063.00	128,991,063.00
Total, Canal General Property (table No. 2)	106,855,931.78	392,582,461.98	499,438,393.76
Floating plant (table No. 3)	9,750,190.12		9,750,190.12
Canal defense property (incomplete)		66,575,181.74	66,575,181.74
Construction, additional facilities (incomplete)		73,368,963.55	73,368,963.55
Business fixed property (table No. 4)	42,039,681.55		42,039,681.55
Business equipment (table No. 5)	4,910,887.76		4,910,887.76
Total, capital assets	163,556,691.21	532,526,607.27	696,083,298.48

<sup>1</sup> Channels, harbors, basins, breakwaters, and municipal assets are maintained at original values from current operating expenses. Other nondepreciable property includes excavation and earth fills at locks, dams, and dry docks, and earth saddles at Madden Dam; also certain projects which were incomplete at the close of the fiscal year.

TABLE NO. 7.—*Public works in cities of Panama and Colon, fiscal year 1944*

	Panama	Colon	Total
STATUS OF CAPITAL COST TO JUNE 30, 1944			
Construction cost:			
Water works and sewers	\$876,353.22	\$623,883.68	\$1,500,236.90
Pavements	592,913.23	625,619.03	1,218,532.26
Total construction cost	1,469,266.45	1,249,502.71	2,718,769.16
Amortization:			
Water works and sewers	628,641.12	447,435.40	1,076,076.52
Pavements	429,855.18	458,453.45	888,308.63
Total amortization	1,058,496.30	905,888.85	1,964,385.15
Capital cost reimbursable:			
Water works and sewers	247,712.10	176,448.28	424,160.38
Pavements	163,058.05	167,165.58	330,223.63
Capital value, June 30, 1944	410,770.15	343,613.86	754,384.01
OPERATING DETAIL, FISCAL YEAR 1944			
Operation, maintenance, and repairs:			
Water works and sewers	252,940.43	184,771.91	437,712.34
Pavements	14,567.58	6,291.47	20,859.05
Proportion, Zone system	126,181.36	42,555.12	168,736.48
Street cleaning and garbage collection	216,951.18	84,909.31	301,860.49
Total	610,640.55	318,527.81	929,168.36
Interest at 2 percent per annum:			
Water works and sewers	5,091.00	3,626.37	8,717.37
Pavements	3,351.18	3,435.00	6,786.78
Proportion, Zone system	16,443.41	8,622.68	25,066.09
* Total	24,885.59	15,684.65	40,570.24

TABLE No. 7.—*Public works in cities of Panama and Colon, fiscal year 1944—*  
Continued

	Panama	Colon	Total
OPERATING DETAIL., FISCAL YEAR 1944—continued			
Amortization:			
Water works and sewers.....	\$18,512.73	\$13,186.84	\$31,699.57
Pavements.....	12,186.13	12,493.10	24,679.23
Total.....	30,698.86	25,679.94	56,378.80
Total charged to water rentals.....	666,225.00	359,892.40	1,026,117.40
Water rental collections in Republic of Panama.....	666,225.00	359,892.40	1,026,117.40

The Panama Canal supplies water to the cities of Panama and Colon from the Canal Zone water system, and maintains the sewers and streets in the two cities under a contract entered into between The Panama Canal and the Republic of Panama in 1907. The Panama Canal collects the water rentals from the residents of these two cities and uses the funds to cover the cost of water and maintenance of sewers and streets, interest on the unamortized investment at 2 per cent per annum and amortization based on 50 years from 1907.

Interest on the investment amounting to \$40,570.24 and amortization amounting to \$56,378.80 for the fiscal year 1944 has been covered into the United States Treasury as miscellaneous receipts, making the totals to date \$1,834,365.39 for interest, and \$1,964,385.15 for amortization.

TABLE No. 8.—Appropriated funds—Receipts and disbursements, fiscal year ended June 30, 1944

	Disbursing clerk, Washington, D. C.	Paymaster, Canal Zone	Collector, Canal Zone	Total	U. S. Treasury	Total
<b>ACCOUNTABLE BALANCE JULY 1, 1943, BY APPROPRIATIONS AND FUNDS</b>						
Maintenance and operation, Panama Canal.....	\$634,225.64	\$10,501,320.84	\$390,273.00	\$11,525,819.48	\$19,268,544.71	\$30,794,364.19
Sanitation, Canal Zone, Panama Canal.....	77,880.08	15,260.02	11,831.89	104,971.99	41,020.44	145,992.43
Civil government, Panama Canal and Canal Zone.....	9,836.27	88,702.27	3,485.36	102,023.90	96,236.57	198,260.47
Postal funds, Canal Zone (special fund).....	7,404.26	45,383.20	148,490.77	201,278.23	598,673.55	799,951.79
Repatriation of unemployed aliens, Panama Canal.....		10,091.14		10,091.14	80,000.00	90,091.14
Memorial to Maj. Gen. George W. Goethals.....	204,317.96	269,539.81	1,622.96	475,480.73	156,508.58	631,989.31
Construction, additional facilities, Panama Canal.....					40,619,803.00	41,095,253.73
Working funds, Panama Canal:						
Access roads projects.....		80,394.90		80,394.90	142,000.00	222,394.90
Hospitalization of military personnel.....		86,483.00		86,483.00	25,000.00	111,483.00
Policing Army civilian housing areas.....		18,630.36		18,630.36		18,630.36
(Trust fund) Venereal disease control.....		7,893.02		7,893.02		7,893.02
Transfer from defense public works, FWA—Community facilities.....		140,616.22		140,616.22	185,100.00	325,716.22
Total.....	933,664.21	11,264,314.78	555,703.98	12,753,682.97	61,212,888.86	73,966,571.83
<b>APPROPRIATIONS FOR FISCAL YEAR 1943</b>						
Sanitation, Canal Zone, Panama Canal.....					146,800.00	146,800.00
Civil government, Panama Canal and Canal Zone.....					111,000.00	111,000.00
Total.....					257,800.00	257,800.00
<b>APPROPRIATIONS FOR FISCAL YEAR 1944</b>						
Maintenance and operation, Panama Canal.....					6,016,000.00	6,016,000.00
Sanitation, Canal Zone, Panama Canal.....					1,814,000.00	1,814,000.00
Civil government, Panama Canal and Canal Zone.....					1,228,100.00	1,228,100.00
Working funds, Panama Canal:						
Access roads projects.....					558,600.00	558,600.00
Hospitalization of military personnel.....					552,000.00	552,000.00
Policing Army civilian housing areas.....					107,700.00	107,700.00
Transfer from defense public works, FWA—Community facilities.....					309,584.00	309,584.00
Total.....					10,585,984.00	10,585,984.00
<b>TRANSFERS BETWEEN FISCAL OFFICERS</b>						
Maintenance and operation, Panama Canal.....	10,700,000.00	35,968,673.60		46,668,673.60	4,600,798.45	51,269,472.05
Sanitation, Canal Zone, Panama Canal.....	200,000.00	3,455,793.48		3,655,793.48	50,988.68	3,706,782.16
Civil government, Panama Canal and Canal Zone.....	35,000.00	1,677,134.33		1,712,134.33	10,300.47	1,722,434.80

See footnotes at end of table.



TABLE No. 8.—Appropriated funds—Receipts and disbursements, fiscal year ended June 30, 1944—Continued

TRANSFERS BETWEEN FISCAL OFFICERS—continued						
	Disbursing clerk, Washington, D. C.	Paymaster, Canal Zone	Collector, Canal Zone	Total	U. S. Treasury	Total
Postal funds, Canal Zone (special fund).....	\$5,000.00	\$350,000.00	-----	\$355,000.00	\$746,779.94	\$1,101,779.94
Construction, additional facilities, Panama Canal.....	1,200,000.00	6,101,759.67	-----	7,301,759.67	123,991.45	7,425,751.12
Working funds, Panama Canal:						
Access roads projects.....	-----	400,600.00	-----	400,600.00	-----	400,600.00
Hospitalization of military personnel.....	-----	684,700.00	-----	684,700.00	-----	684,700.00
Transfer from defense public works, FWA—Community facilities.....	-----	354,684.00	-----	354,684.00	-----	354,684.00
Total.....	12,140,000.00	48,993,345.08	-----	61,133,345.08	5,533,038.99	66,666,404.07
COLLECTIONS REPAYABLE TO APPROPRIATIONS						
Maintenance and operation, Panama Canal.....	600,741.30	3,670,103.06	\$35,756,771.34	40,027,615.70	6,672.72	40,034,288.42
Sanitation, Canal Zone, Panama Canal.....	51,119.68	449,745.52	1,603,571.20	2,104,436.40	1,335.52	2,105,771.92
Civil government, Panama Canal and Canal Zone.....	10,500.47	625,842.95	271,046.50	907,389.92	-----	907,389.92
Postal funds, Canal Zone (special fund).....	11,900.00	-----	696,099.25	707,999.25	-----	707,999.25
Construction, additional facilities, Panama Canal.....	123,856.45	1,358,051.03	102,070.58	1,583,978.06	124.98	1,584,103.04
Total.....	798,117.90	6,103,742.56	38,429,558.87	45,331,419.33	8,133.22	45,339,552.55
Total cash debits.....	13,871,782.11	66,361,402.42	38,985,262.85	119,218,447.38	77,597,865.07	196,816,312.45
COVERED INTO THE U. S. TREASURY						
Business net revenues, fiscal year 1943, maintenance and operation, Panama Canal.....	-----	-----	-----	-----	1,455,425.77	1,455,425.77
REFUNDED TO THE U. S. TREASURY						
In accordance with proviso "That \$30,257,572 of the appropriation "Construction, additional facilities, Panama Canal" is hereby revealed" (1945 Appropriation Act, Public Law 352, approved June 26, 1944):						
Construction, additional facilities, Panama Canal.....	-----	-----	-----	-----	30,257,572.00	30,257,572.00
TRANSFERS BETWEEN FISCAL OFFICERS						
Maintenance and operation, Panama Canal.....	600,802.45	4,000,000.00	35,968,673.60	40,569,476.05	10,700,000.00	51,269,476.05
Sanitation, Canal Zone, Panama Canal.....	51,119.68	-----	1,602,793.48	1,653,913.16	2,053,000.00	3,706,913.16
Civil government, Panama Canal and Canal Zone.....	10,500.47	-----	271,034.33	281,534.80	1,441,100.00	1,722,634.80
Postal funds, Canal Zone (special fund).....	11,075.00	-----	735,704.94	746,779.94	355,000.00	1,101,779.94
Construction, additional facilities, Panama Canal.....	123,856.45	-----	101,759.67	225,616.12	7,200,000.00	7,425,616.12



TABLE No. 9.—*Custodial funds—Receipts and disbursements, fiscal year ended June 30, 1944*

	Disbursing clerk, Washington, D. C.	Paymaster, Canal Zone	Collector, Canal Zone	Total	U. S. Treasury	Total
<b>ACCOUNTABLE BALANCE JULY 1, 1943</b>						
Revenue due U. S. Treasury			\$106,289.71	\$106,289.71		\$106,289.71
Security deposits	\$23,210.21	\$538,394.72	1,835,315.26	2,396,920.19		2,396,920.19
Clubhouse funds			37,741.43	37,741.43	\$1,445,021.77	1,482,763.20
Money-order funds			48,231.42	48,231.42	10,200,432.70	10,248,664.12
War Savings bonds funds			25.00	25.00	70,602.95	70,627.95
Total	23,210.21	538,394.72	2,027,602.82	2,589,207.75	11,716,057.42	14,305,265.17
<b>RECEIPTS</b>						
Revenue due U. S. Treasury	4,502.86	33.65	5,754,198.98	5,758,735.49		5,758,735.49
Security deposits	271,041.46	15,300,957.71	16,906,371.82	32,478,370.99		32,478,370.99
Clubhouse funds			5,814,224.93	5,814,224.93		5,814,224.93
Money-order funds			9,449,644.91	9,449,644.91	101,645.61	9,551,290.52
War Savings bonds funds			1,427,634.06	1,427,634.06		1,427,634.06
Total	275,544.32	15,300,991.36	39,352,074.705	4,928,610.38	101,645.61	55,030,255.99
Total to be accounted for	298,754.53	15,839,386.08	41,379,677.52	57,517,818.13	11,817,703.03	69,335,521.16
Transfer to U. S. Treasury:						
Clubhouse funds			(5,835,763.53)	(5,835,763.53)	5,835,763.53	
Money-order funds			(8,999,606.45)	(8,999,606.45)	8,999,606.45	
War Savings bonds funds			(1,427,634.06)	(1,427,634.06)	1,427,634.06	
Total cash debits	298,754.53	15,839,386.08	25,116,673.48	41,254,814.09	28,080,707.07	69,335,521.16
<b>COVERED INTO THE U. S. TREASURY</b>						
Revenue due U. S. Treasury	4,502.86	33.65	5,820,425.34	5,824,961.85		5,824,961.85
<b>TRANSFERS AND REFUNDS</b>						
Security deposits	234,078.47	15,602,325.65	16,710,114.29	32,546,518.41		32,546,518.41
<b>DISBURSEMENTS</b>						
Clubhouse funds					6,103,696.11	6,103,696.11
Money-order funds			438,650.00	438,650.00	9,726,078.06	10,164,728.06
War Savings bonds Funds					1,448,553.10	1,448,553.10
Total	238,581.33	15,602,359.30	22,969,189.63	38,810,130.26	17,278,327.27	56,088,457.53
<b>ACCOUNTABLE BALANCE JUNE 30, 1944</b>						
Revenue due U. S. Treasury			40,063.35	40,063.35		40,063.35
Security deposits	60,173.20	237,026.78	2,031,572.79	2,328,772.77		2,328,772.77
Clubhouse funds			16,202.83	16,202.83	1,177,089.19	1,193,292.02
Money-order funds			59,619.88	59,619.88	9,575,606.70	9,635,226.58
War Savings bonds funds			25.00	25.00	49,683.91	49,708.91
Total	60,173.20	237,026.78	2,147,483.85	2,444,683.83	10,802,379.80	13,247,063.63
Total cash credits	298,754.53	15,839,386.08	25,116,673.48	41,254,814.09	28,080,707.07	69,335,521.16

( ) Denotes deduction.

<sup>1</sup> Includes \$4,750,000 invested in U. S. Treasury Bonds; \$3,500,000 in U. S. Treasury Notes; and \$300,000 in War Savings bonds, total \$8,550,000, a decrease of \$458,092.13 in U. S. Treasury Bonds; an increase of \$1,250,000 in U. S. Treasury Notes, and \$200,000 in War Savings bonds over the previous year. Federal Farm Loan Bonds in the amount of \$290,262.26 were sold during the year.

<sup>2</sup> Total per balance sheet, table No. 1, \$13,390,016.63 includes \$142,953 of bills in process of collection.

Custodial funds cover cash transactions which are controlled by separate fiscal regulations from those which govern the expenditure of appropriations made by Congress for maintenance and operation of the Panama Canal.

Revenue due United States Treasury covers collections for deposit as miscellaneous receipt of the United States Government which form no part of the working cash of The Panama Canal, as these funds must by law immediately be covered into the United States Treasury and relinquished from control of The Panama Canal. These collections consist mainly of tolls, licenses, court fees and fines, and amortization of public works in Panama and Colon.

Security deposits cover cash received by Canal fiscal officers from banks, individuals, and companies to guarantee payment of bills rendered by The Panama Canal and the Panama Railroad Co., and to guarantee fulfillment of contracts. Disbursements of these funds represent transfers to revenue due United States Treasury on this table, collections repayable to appropriations on the preceding table, and the return of unexpended balances to depositors.

Special deposit funds cover certain activities conducted by the Canal Zone Government separately from appropriations, principally postal money order funds, and transactions of Panama Canal clubhouses maintained exclusively for employees.

TABLE NO. 10.—*Accounts receivable*  
REGISTERED DURING THE YEAR

	Fiscal year 1944	Fiscal year 1943
Repaid to appropriations:		
Panama Railroad Co.....	\$4,267,725.99	\$5,114,774.81
Other departments of the U. S. Government.....	19,507,200.41	19,908,931.23
Individuals and companies.....	10,769,388.02	9,902,857.18
Total.....	34,544,314.42	34,926,563.22
Miscellaneous receipts:		
Tolls.....	5,493,128.50	7,373,358.04
Public works, Republic of Panama.....	112,497.14	93,497.21
Total.....	5,605,625.64	7,466,855.25
Total Accounts Receivable Registered.....	40,149,940.06	42,393,418.47
Number of bills registered.....	73,792	66,804

ACCOUNTS RECEIVABLE END FISCAL YEAR

Audited bills.....	\$49,25,898.46	\$5,332,315.96
Hospital certificates.....	43,708.80	50,936.43
Injury compensation.....	13,937.69	10,145.66
Unredeemed commissary coupons.....		43.52
Drums, carboys, reels, and cylinders returned for credit.....	4,504.79	
Total.....	4,988,049.74	5,393,441.57



The balance at the end of the fiscal year includes all accounts due The Panama Canal except items of utility service, principally from employees, which are not credited to earnings until collected usually by pay-roll deductions.

TABLE NO. 11.—*Materials and supplies*

	Fiscal year 1944	Fiscal year 1943
Stock on hand, first of year:		
Balboa store.....	\$8,958,997.40	\$4,833,401.94
Medical store.....	560,410.13	279,093.36
Administration building store.....	71,904.91	51,493.98
Gamboa store.....	1,006,106.85	544,798.46
Cristobal store.....	1,824,235.49	1,209,910.91
Locks store.....	667,584.51	539,676.87
Fuel-oil plants.....	70,844.65	40,484.34
Panama Canal Press.....	277,180.75	103,188.21
Sand and gravel pile.....	90,481.72	59,638.16
Division stores.....	972,297.08	856,668.38
Total stock card value.....	14,500,043.49	8,518,354.61
Reserve for inventory adjustments.....	1,065,083.16	407,946.11
Book value of stock on hand.....	13,434,960.33	8,110,408.50
Receipts of material:		
Purchases for stock.....	9,908,864.50	18,494,485.40
Purchases for divisions.....	1,848,082.84	5,980,808.30
Local production.....	3,251,627.64	3,787,558.29
Book value of receipts.....	15,008,574.98	28,262,851.99
Total charges to stock.....	28,443,535.31	36,373,260.49
Issues and sales of material:		
Issues to business divisions.....	8,622,245.93	14,289,525.37
Issues to Canal divisions.....	2,460,315.16	3,867,104.20
Variation in division stores.....	(257,032.16)	(115,628.70)
Total issues.....	10,825,528.93	18,041,000.87
Sales.....	6,783,470.54	4,897,299.29
Total issues and sales.....	17,608,999.47	22,938,300.16
Stock on hand, end of year:		
Balboa store.....	7,259,265.64	8,958,997.40
Medical store.....	391,934.81	560,410.13
Administration building store.....	51,946.11	71,904.91
Gamboa store.....	1,390,336.81	1,006,106.85
Cristobal store.....	1,512,204.45	1,824,235.49
Locks store.....	710,644.89	667,584.51
Fuel-oil plants.....	310,380.46	70,844.65
Panama Canal Press.....	382,774.06	277,180.75
Sand and gravel pile.....	157,447.08	90,481.72
Division stores.....	715,264.92	972,297.08
Total stock card value.....	12,882,199.23	14,500,043.49
Reserve for inventory adjustments.....	2,047,663.39	1,065,083.16
Book value of stock on hand.....	10,834,535.84	13,434,960.33

In the foregoing table, the values of stock on hand at the beginning and end of the year and receipts and issues of material are shown at invoiced cost plus a procurement surcharge to cover United States inland freight, ocean freight, and purchase and inspection expense.

TABLE NO. 12.—*Work in progress*

	Fiscal year 1944	Fiscal year 1943
Electrical division.....	\$2, 979. 22	\$2, 602. 87
Municipal division.....	2, 696. 62	5, 938. 94
Shops and drydocks.....	1, 332, 388. 82	1, 094, 138. 30
Building division.....	1, 605. 23	30, 630. 35
Panama Canal Press.....	6, 188. 79	6, 271. 67
Total.....	1, 345, 858. 68	1, 139, 582 13

This account covers the amounts expended on uncompleted jobs, and will ultimately be cleared to operating expenses of the division indicated, with corresponding credits to their revenues after application of authorized surcharges.

TABLE NO. 13.—*Deferred charges*

	Fiscal year 1944	Fiscal year 1943
Health department.....		\$16. 62
Office engineer.....	\$8. 31	
District quartermaster:		
Balboa.....		1, 351. 87
Cocoli.....	27. 50	
Cristobal.....	7. 50	
Port captain, Cristobal.....	3, 155. 75	
Dredging division.....	265, 718. 51	222, 527. 11
Experimental gardens.....	4, 904. 06	6, 057. 91
General accounts, suspense.....	213, 271. 78	62, 371. 15
Electric power system.....	15. 38	636. 52
Electric work.....	2, 512. 20	13, 302. 88
Water system.....	2, 003. 00	4, 968. 31
Municipal work.....	9, 583. 15	47, 661. 45
Shops and dry docks.....	232, 054. 58	294, 806. 73
Fuel-oil plants.....	1, 549. 21	1, 099. 74
Motor transportation.....		8, 466. 13
Building division.....	17, 188. 58	70, 875. 76
Gold quarters.....	5, 111. 30	12, 500. 00
Silver quarters.....		21, 200. 00
District quartermasters' supplies.....	2, 741. 94	3, 101. 32
Public works:		
Panama.....	654, 523. 87	614, 891. 15
Colon.....	523, 246. 81	390, 304. 32
Total.....	1, 937, 623. 43	1, 776, 138. 97

This account covers expenses incurred for account of divisions indicated, but which are not chargeable to operating accounts of the current year. These amounts are cleared as soon as values are consumed.

TABLE NO. 14.—*Capital investment*

Appropriations for Canal construction to June 30, 1921 (detail in annual report for 1924, table No. 3).....	\$386, 910, 301. 00
Deduct value of capital stock of the Panama Railroad Co.....	7, 000, 000. 00
Net construction appropriations.....	379, 910, 301. 00
Annual payments to the Republic of Panama, 1913 to 1920 (State Department).....	2, 000, 000. 00

TABLE No. 14.—*Capital investment*—Continued

Additional construction funds, July 1, 1921, to June 30, 1944...	\$190, 631, 318. 49
Total cash investment.....	572, 541, 619. 49
Interest on construction funds (compounded annually) 1904 to 1920.....	128, 991, 063. 00
Total capital investment.....	701, 532, 682. 49

The capital investment account covers the following assets, showing the total as of June 30, 1943, the increase for the current fiscal year, and the total as of June 30, 1944.

	June 30, 1943	Increase	June 30, 1944
Canal general property (table No. 2).....	\$498, 275, 910. 37	\$1, 162, 483. 39	\$499, 438, 393. 76
Floating plant (table No. 3).....	9, 615, 086. 32	135, 103. 80	9, 750, 190. 12
Canal defense property.....	61, 249, 498. 13	5, 325, 683. 61	66, 575, 181. 74
Additional facilities (third set locks).....	67, 456, 973. 97	5, 911, 989. 58	73, 368, 963. 55
Business fixed property (table No. 4).....	41, 534, 449. 14	565, 232. 41	42, 039, 681. 55
Business equipment (table No. 5).....	4, 914, 081. 43	(3, 193. 67)	4, 910, 887. 76
Public works, Republic of Panama (table No. 7).....	810, 762. 81	(56, 378. 80)	754, 384. 01
Proportion of working capital (table No. 23).....	4, 695, 000. 00	-----	4, 695, 000. 00
Total capital investment.....	688, 551, 762. 17	12, 980, 920. 32	701, 532, 682. 49
Less accrued depreciation (table No. 16).....	43, 725, 109. 16	2, 012, 096. 41	45, 737, 295. 57
Net capital investment.....	644, 826, 563. 01	10, 968, 823. 91	655, 795, 476. 92

( ) Denotes decrease.

The total capital investment at the close of the fiscal year 1944 amounted to \$701,532,682.49. The increase of \$12,980,920.32 is due to the making of necessary additions to plant and equipment as shown on capital tables No. 2, 3, 4, and 5.

Interest on the net capital investment from 1921 to date is considered as a charge to operating expenses, and while this charge does not appear on the balance sheet, a statement of such interest compared with net revenues, by years, is shown on table No. 21. Interest for the current fiscal year is based upon a net capital investment of \$516,120,180.91, as of June 30, 1943, which is the above net capital investment of \$644,826,553.01 less Canal defense property, \$61,249,498.13, and additional facilities (third set locks), \$67,456,973.97, and amounts to \$15,483,605.43.

TABLE No. 15.—*Accounts payable*

	Fiscal year 1944	Fiscal year 1943
United States invoices.....	\$396, 654. 57	(\$1, 013, 529. 03)
Isthmus vouchers.....	219, 857. 37	790, 387. 35
Current pay rolls.....	3, 029, 759. 74	3, 494, 766. 12
Unpaid salaries and wages.....	104, 780. 77	26, 322. 24
Drums, carboys, and reels.....	-----	(9, 153. 86)
Tanker freight.....	57, 575. 37	-----
Panama Railroad Co. freight average.....	5, 341. 39	-----
Total.....	3, 813, 969. 21	3, 288, 792. 82

( ) Denotes debit balance.

The above table covers all current obligations of The Panama Canal, except deposits to guarantee payment of bills, and special deposit funds, all of which are covered by table No. 9, custodial funds.

TABLE NO. 16.—*Depreciation reserves, fiscal year 1944*

## CANAL DEPRECIATION

	Balance July 1, 1943	Accruals	Retirements	Balance June 30, 1944
Locks.....	\$13,548,610.01	\$493,604.89	\$7,983.02	\$14,034,231.88
Madden Dam.....	439,739.75	55,085.09		494,824.84
Spillways.....	596,974.56	21,320.52		618,295.08
Aids to navigation.....	428,260.05	11,629.61		439,889.66
Wharves and piers.....	2,826,013.22	144,324.60		2,970,337.82
Dry docks.....	943,906.63	42,657.93		986,564.56
Coaling plants.....	3,609,022.30	147,506.06		3,756,528.36
Dredging division plant.....	542,265.17	32,664.17		574,929.34
Ferry plants.....	259,621.27	124,506.04		384,127.31
Office buildings.....	515,737.28	25,916.27		541,653.55
Gorgas Hospital.....	446,852.14	18,814.35	3,862.96	461,803.53
Corozal Hospital.....	115,961.22	6,722.72		122,683.94
Colon Hospital.....	91,631.46	4,942.78		96,574.24
Dispensaries.....	66,519.35	3,595.68		70,115.03
Palo Seco Colony.....	49,169.91	4,346.30	3,580.09	49,936.12
Quarantine stations.....	65,392.70			65,392.70
Other health department structures.....	39,185.48	2,959.89		42,145.37
Playgrounds.....	96,137.00	6,735.14	8,019.04	94,853.10
Post offices.....	11,991.15	2,967.31		14,958.46
Schoolhouses.....	310,335.08	24,403.88		334,738.96
Fire stations.....	39,454.89	2,541.34		41,996.23
Police stations.....	33,705.21	6,262.05		39,967.26
Prisons.....	8,250.00	1,864.86		10,114.86
Courthouses.....	99,926.60	3,754.65		103,681.25
Other buildings and structures.....	276,462.76	13,237.48	1,100.00	288,600.24
Contingent reserve.....	229,461.56	<sup>1</sup> (2,363.61)	<sup>2</sup> 308,385.63	(11,287.68)
Total, Canal depreciation.....	25,760,586.75	1,200,000.00	332,930.74	26,627,656.01

## PLANT DEPRECIATION

	Adjusted balance July 1, 1943	Accruals	Retirements	Balance June 30, 1944
Floating plant:				
Tugs and craneboats.....	\$1,235,211.92	\$89,045.00	\$181,866.92	\$1,142,390.00
Launches.....	318,507.46	59,373.64	17,150.74	360,730.36
Dredges.....	1,786,230.00	83,790.00		1,870,020.00
Dump scows.....	1,140,930.79	43,140.00	68,003.30	1,116,067.49
Machine barges.....	431,186.65	54,920.00		486,106.65
Lighters.....	170,232.24	18,078.00		188,310.24
Launch repair barges.....	696.00	1,392.00		2,088.00
Anchor barges.....		1,170.00		1,170.00
Total floating plant.....	5,082,995.06	350,908.64	267,020.96	5,166,882.74
Business fixed property:				
Electric power system.....	2,614,692.95	170,233.32		2,784,926.27
Electric work.....	61,531.24	7,797.36		69,328.60
Water system.....	1,239,134.48	147,721.00	4,542.50	1,382,312.98
Municipal work.....	16,105.43	2,886.00		18,991.43
Mechanical shops.....	1,037,147.02	63,213.58	722.48	1,099,638.12
Fuel-oil plants.....	1,107,803.21	73,519.28	114,205.02	1,067,117.47
General storehouses.....	656,988.05	46,241.00		703,229.05
Motor transportation.....	36,820.14	5,478.00		42,298.14
Motorcar repair shops.....	27,660.32	4,356.00	8,184.32	23,832.00
Building division.....	18,196.99	1,679.00		19,875.99
Gold quarters.....	2,757,982.50	319,917.93	6,100.00	3,071,800.43
Silver quarters.....	501,207.57		1,000.00	500,207.57
Clubhouse business structures.....	302,338.67	17,831.46	16,302.62	303,867.51
District quartermasters' supplies.....	18,060.45	2,189.25		20,249.70
Total, business fixed property.....	10,395,669.02	863,063.18	151,056.94	11,107,675.26

<sup>1</sup> Includes \$46,822.88 for silver quarters.<sup>2</sup> Includes \$128,133.08 for the tug *Charges*, \$171,756.40 for the tug *Athajuela*, and miscellaneous charges amounting to \$8,496.15.



TABLE NO. 16.—*Depreciation reserves, fiscal year 1944*—Continued

	Adjusted balance July 1, 1943	Accruals	Retirements	Balance June 30, 1944
Business equipment:				
Electric power system.....	131,098.46	18,972.00	-----	150,070.46
Electric work.....	7,669.87	264.00	-----	7,933.87
Municipal work.....	332,683.67	57,800.89	73,396.24	317,088.32
Mechanical shops.....	1,194,973.90	238,372.74	88,532.09	1,344,814.55
General storehouses.....	90,248.02	9,100.16	-----	99,348.18
Motor transportation.....	579,861.57	190,596.22	76,352.12	694,105.67
Motorcar repair shops.....	36,454.24	2,604.89	-----	39,059.13
Building division.....	99,313.64	12,097.88	-----	111,411.52
Panama Canal Press.....	61,576.80	7,454.16	-----	69,030.96
District quartermasters' supplies.....	2,068.90	60.00	-----	2,128.90
Total, business equipment.....	2,535,949.07	537,322.94	238,280.45	2,834,991.56
Total, business fixed property and equipment.....	12,931,618.09	1,400,386.12	389,337.39	13,942,666.82
Total, plant depreciation.....	18,014,613.15	1,751,294.76	656,358.35	19,109,549.56

## SUMMARY

	Adjusted balance July 1, 1943	Accruals	Retirements	Balance June 30, 1944
Canal depreciation.....	\$25,760,586.75	\$1,200,000.00	\$332,930.74	\$26,627,656.01
Plant depreciation.....	18,014,613.15	1,751,294.76	656,358.35	19,109,549.56
Total depreciation.....	43,775,199.90	2,951,294.76	989,289.09	45,737,205.57

The accrued balance as of June 30, 1944, or \$45,737,205.57, applies to depreciable capital assets shown on tables Nos. 3, 4, 5, and 6, amounting to \$163,556,691.21.

Adjusted balance as of July 1, 1943, of \$18,014,613.15 as compared to \$17,964,522.41 as shown in the 1943 annual report, making a difference of \$50,090.74, is made up as follows:

Transfer from repair reserves to cover write-off of tug <i>Chagres</i> .....	\$8,851.92
Adjustment of depreciation accruals for prior years on frequency changer transferred from distribution system to substations.....	1,125.00
Adjustment of depreciation accruals for prior years on fire protection, Cristobal and Balboa fuel-oil plants, in order to provide sufficient depreciation reserves to absorb the write-off of this capital value..	40,113.82
	50,090.74

TABLE NO. 17.—*Reserve for repairs*

	Adjusted balance July 1, 1943	Accruals	Charges	Balance June 30, 1944
Tugs and craneboats.....	\$97,670.66	\$142,784.52	\$179,429.18	\$61,026.00
Dredges.....	136,390.69	427,655.00	491,018.80	73,026.89
Dump scows.....	164,842.10	182,632.00	104,021.33	243,452.77
Machine barges.....	50,007.92	29,930.00	41,057.08	38,880.84
Lighters.....	14,898.33	(14,898.33)	-----	-----
Total, floating plant.....	463,809.70	768,103.19	815,526.39	416,386.50
Electric work, equipment.....	20,914.99	61,085.49	52,771.34	29,229.14
Total, business equipment.....	20,914.99	61,085.49	52,771.34	29,229.14
Total reserve for repairs.....	484,724.69	829,188.68	868,297.73	445,615.64

Adjusted balance as of July 1, 1943, of \$484,724.69 as compared to \$493,576.61 as shown in the 1943 annual report, making a difference of \$8,851.92, is a transfer to the depreciation reserve of the tug *Chagres*.

TABLE NO. 18.—*Reserve for leave*

	Fiscal year 1944	Fiscal year 1943
Electrical division.....	450,092.14	451,422.12
Municipal division.....	674,053.98	870,106.59
Shops and dry docks.....	1,206,684.98	981,806.07
Motor transportation.....	182,350.43	189,725.60
Motor car repair shops.....	94,667.40	83,374.75
Building division.....	250,799.91	287,355.15
Total.....	2,858,648.84	2,863,790.28

The foregoing table represents the reserve for vacation pay due employees of the principal business divisions. The reserve is credited by adding a percentage to direct labor charges for work performed by the division listed above to the credit of this account. The account is debited with the amount paid to employees when leave is actually taken.

TABLE NO. 19.—*Deferred credits*

	Fiscal year 1944	Fiscal year 1943
Executive office.....	\$125.86	\$405.07
Panama Canal clubhouses.....	.48	-----
Comptroller's office.....	9,264.66	4,540.80
Paymaster's office.....	2,750.00	-----
Civil government.....	53,137.86	28,253.35
Postal service.....	180,230.80	829,017.91
Health department.....	289,359.96	235,098.83
Office engineer.....	2,917.65	4,835.02
Meteorology and hydrography.....	6,000.00	-----
District quartermaster:		
Balboa.....	14,841.55	-----
Pedro Miguel.....	20.00	-----
Gamboa.....	2.50	-----
Gatun.....	12.50	-----
Marine superintendent.....	74.14	-----
Nautical books and charts.....	9.00	-----
Port captain:		
Balboa.....	37,798.71	19,056.29
Cristobal.....	13,669.94	-----
Lighthouse subdivision.....	20,244.44	41,119.23
Pacific locks.....	-----	20,460.89
Atlantic locks.....	25,713.21	8,524.93
Dredging division.....	24,418.89	4,021.55
Experimental gardens.....	1,932.50	6,613.72
Special engineering division.....	170,686.81	629,423.42
General accounts, suspense.....	2,667.50	58,186.69
Electric power system.....	-----	6,654.81
Electric work.....	119,178.28	54,870.77
Water system.....	65,800.09	94,586.41
Municipal work.....	1,959,723.15	1,623,130.50
Shops and dry docks.....	868,449.30	279,911.47
Fuel-oil plants.....	100,762.71	144,724.16
General storehouses.....	245,648.76	-----
Motor transportation.....	-----	9,000.00
Motor car repair shops.....	921.62	20,000.00
Building division.....	133,134.28	55,325.02
Panama Canal Press.....	34,139.43	3,800.00
Gold quarters.....	19,041.47	-----
Silver quarters.....	17,187.59	-----
Subsistence section.....	16,677.51	17,907.58
District quartermasters' supplies.....	9,241.39	21,827.71
Contingencies:		
Maintenance and operation.....	45,999.17	45,928.74
Sanitation.....	807.25	752.67
Civil government.....	169.82	148.07
Total.....	4,492,760.78	4,268,125.61

This account covers expenses accrued or estimated which have been charged to operating accounts, but for which it was impracticable to institute corresponding payments at close of the accounting period. These amounts are cleared as soon as corresponding charges are passed for payment, or contingent expenses arise.

TABLE NO. 20.—*Consolidated statement of income, expenses, and net revenues*

	Fiscal year 1944	Fiscal year 1943
Canal operations:		
Canal revenues:		
Tolls.....	\$5, 473, 846. 30	\$7, 368, 680. 74
Postal surplus.....	43, 697. 46	(190, 801. 75)
Other miscellaneous receipts.....	195, 695. 85	201, 645. 65
Total Canal revenues (table No. 24).....	5, 713, 239. 61	7, 379, 524. 64
Canal earnings (table No. 25).....	13, 691, 754. 08	17, 199, 865. 11
Total revenues.....	19, 404, 993. 69	24, 579, 389. 75
Canal expenses:		
Executive offices.....	1, 349, 471. 65	1, 403, 131. 10
Playgrounds.....	133, 658. 00	103, 270. 00
Accounting department.....	1, 082, 625. 87	1, 047, 457. 81
Washington office.....	700, 089. 44	797, 837. 51
Civil government.....	2, 374, 782. 14	2, 370, 974. 25
Postal service.....	635, 721. 79	824, 175. 35
Health department.....	4, 332, 552. 86	4, 318, 379. 64
Office engineer.....	876, 441. 48	1, 341, 959. 00
Meteorology and hydrography.....	48, 284. 98	38, 900. 57
Public buildings and grounds.....	824, 737. 34	727, 204. 43
Marine division.....	2, 448, 501. 63	2, 116, 520. 34
Locks operation and maintenance.....	1, 802, 837. 21	1, 685, 458. 14
Locks overhaul.....	405, 226. 03	298, 507. 12
Dams and spillway.....	65, 694. 94	86, 183. 14
Dredging division.....	6, 456, 476. 20	8, 154, 901. 59
Municipal expenses.....	547, 143. 37	576, 395. 46
Experimental gardens.....	341, 510. 18	663, 765. 47
Recruiting and repatriating employees.....	20, 082. 54	15, 399. 88
Transportation of employees on Isthmus.....	143, 507. 80	144, 246. 19
Damage to vessels.....	11, 682. 17	34, 694. 03
Miscellaneous general expenses.....	94, 890. 88	89, 068. 48
Depreciation on Canal general property.....	1, 200, 000. 00	1, 200, 000. 00
Annual payment to Republic of Panama.....	430, 000. 00	430, 000. 00
Total expenses.....	26, 325, 918. 50	28, 468, 429. 50
Net Canal revenues (table No. 25).....	(6, 920, 924. 81)	(3, 889, 039. 75)
Fixed capital charge.....	14, 413, 999. 33	14, 397, 115. 85
Surplus or (deficit).....	(21, 334, 924. 14)	(18, 286, 155. 60)
Business operations:		
Business revenues.....	62, 416, 364. 24	79, 632, 689. 33
Business expenses.....	60, 863, 070. 18	78, 140, 146. 63
Net business revenues.....	1, 553, 294. 06	1, 492, 542. 70
Fixed capital charge.....	1, 069, 606. 10	1, 035, 105. 07
Surplus or (deficit).....	483, 687. 96	457, 437. 63
Combined operations:		
Revenues.....	81, 821, 357. 93	104, 212, 079. 08
Expenses.....	87, 188, 988. 68	106, 608, 576. 13
Net revenues.....	(5, 367, 630. 75)	(2, 396, 497. 05)
Fixed capital charge at 3 percent.....	15, 483, 605. 43	15, 432, 220. 92
Surplus or (deficit).....	(20, 851, 236. 18)	(17, 828, 717. 97)
Net capital investment (table No. 14).....	516, 120, 180. 91	514, 407, 363. 78
Combined net revenues.....	(5, 367, 630. 75)	(2, 396, 497. 05)
Percent of capital return.....	(1. 04)	(. 47)

( ) Denotes deficit.

A summary comparison of net revenues and capital interest, by years, from 1921 to date, is shown on table No. 21, following, together with a brief description of accounting policy governing charges to operating expenses.

TABLE NO. 21.—*Revenues, expenses, and computed surplus*

Fiscal year	Tolls	Civil revenues	Business profits	Total revenues
1914-20	\$33,303,581.67	\$1,206,579.86	\$536,098.34	\$35,046,259.87
1921	11,261,919.31	213,986.19	564,211.20	12,040,116.70
1922	11,193,383.47	192,208.85	323,259.16	11,708,851.48
1923	17,507,630.52	184,213.54	1,140,642.50	18,852,486.56
1924	24,289,603.16	392,250.73	901,624.12	25,583,478.01
1925	21,374,664.12	207,954.04	765,916.85	22,348,535.01
1926	22,927,456.03	217,680.50	841,310.29	23,986,446.82
1927	24,217,185.32	391,623.50	876,536.80	25,485,345.62
1928	26,943,513.11	232,532.57	736,719.43	27,912,765.11
1929	27,123,534.33	243,391.39	737,850.26	28,104,775.98
1930	27,077,117.36	349,255.35	760,971.66	28,187,344.37
1931	24,644,550.39	346,030.35	562,764.17	25,553,344.91
1932	20,706,568.49	327,444.23	557,095.44	21,591,108.16
1933	19,621,158.61	310,014.16	1,135,708.62	21,066,881.39
1934	24,065,065.16	96,666.67	1,366,755.12	25,528,486.95
1935	23,338,977.90	81,957.68	1,021,216.61	24,442,152.19
1936	23,506,806.46	119,915.21	920,185.23	24,546,906.90
1937	23,147,433.54	98,775.74	917,360.14	24,163,569.42
1938	23,215,192.39	90,335.19	824,612.60	24,130,140.18
1939	23,699,413.82	106,929.55	681,272.48	24,487,615.85
1940	21,177,243.04	118,480.75	1,033,886.06	22,329,609.85
1941	18,190,379.36	275,775.08	1,008,741.70	19,474,896.14
1942	9,772,112.42	219,425.29	734,465.84	10,726,003.55
1943	7,368,680.74	54,943.70	1,492,542.70	8,916,167.14
1944	5,473,846.30	239,393.31	1,553,294.06	7,266,533.67
Total	515,147,017.02	6,317,763.43	21,995,041.38	543,459,821.83

Fiscal year	Net appropriation expenses <sup>1</sup>	Net revenues	Capital interest (3 percent <sup>2</sup> )	Computed surplus <sup>3</sup>
1914-20	\$36,657,766.89	(\$1,611,507.02)		(\$1,611,507.02)
1921	9,578,300.14	2,461,816.56	\$14,674,964.74	(12,213,148.18)
1922	8,469,017.63	3,239,833.85	15,253,780.02	(12,013,946.17)
1923	8,240,777.56	10,591,709.00	15,202,430.18	(4,610,721.18)
1924	8,923,905.39	16,659,572.62	15,150,900.33	1,508,672.29
1925	8,666,693.44	13,681,841.57	15,099,730.49	(1,417,888.92)
1926	8,543,468.47	15,442,978.35	15,085,580.64	357,397.71
1927	9,547,715.02	15,937,630.60	15,068,580.79	869,049.81
1928	9,501,200.82	18,411,564.29	15,035,029.29	3,376,535.00
1929	10,187,150.71	17,917,625.27	15,013,374.55	2,904,250.72
1930	9,893,920.93	18,293,423.44	14,987,527.89	3,305,895.55
1931	10,693,353.53	14,859,991.38	14,986,578.04	(126,586.66)
1932	10,239,211.84	11,351,896.32	14,943,807.66	(3,591,911.34)
1933	9,555,672.02	11,511,209.37	14,907,732.16	(3,396,522.79)
1934	7,931,383.77	17,597,103.18	15,039,203.81	2,557,899.37
1935	9,481,429.57	14,960,722.62	15,124,193.39	(163,470.77)
1936	9,675,067.13	14,871,839.77	15,159,597.04	(287,757.27)
1937	10,289,624.05	13,873,945.37	15,205,397.30	(1,331,451.93)
1938	9,575,624.32	14,554,515.86	15,229,922.24	(675,476.38)
1939	10,145,272.18	14,342,343.67	15,250,404.68	(908,061.01)
1940	10,041,950.30	12,287,659.55	15,243,237.66	(2,955,578.11)
1941	9,614,117.60	9,860,778.54	15,275,108.42	(5,414,329.88)
1942	9,406,901.79	1,319,101.76	15,301,998.50	(13,982,896.74)
1943	11,268,564.39	(2,352,397.25)	15,432,220.92	(17,784,618.17)
1944	12,634,164.42	(5,367,630.75)	15,483,605.43	(20,851,236.18)
Total	268,762,253.91	274,697,567.92	363,154,976.17	(88,457,408.25)

<sup>1</sup> After deduction of Canal earnings repaid to appropriations.

<sup>2</sup> Interest prior to July 12, 1920, is included in capital investment account.

<sup>3</sup> Parentheses denotes deficits.

<sup>4</sup> Includes adjustment of \$15,027.41 in postal surplus. (See table No. 32.)

<sup>5</sup> Includes adjustment of \$44,099.80 in postal surplus. (See table No. 32.)



The above table summarizes by classes the revenues received by The Panama Canal by fiscal years from 1921 and shows the net results from operations after deducting therefrom the net current expenses chargeable to appropriations and the current interest charge on the capital investment. The interest rate of 3 percent has been used in making computations a great many years. The use of this rate received the approval of two organizations which investigated Panama Canal matters and was formally adopted when the present accounting system was established in 1932. It has been considered a fair and reasonable rate, as the Government at various times has paid much higher rates for the use of money.

Interest chargeable to operations is not included on the balance sheet and no interest charge against the Canal is actually made by the United States Treasury.

Total revenues on the foregoing statement represent receipts which must be covered into the United States Treasury and relinquished from control of The Panama Canal. Earnings repayable to Canal appropriations, and reexpendable by the Canal, are deducted from gross operating expenditures, in order to present a comparison of funds covered into the Treasury with funds chargeable to operating account, exclusive of capital additions.

The absence of tax charges is compensated for by the inclusion in Canal operating accounts of the direct costs of civil government, health and welfare activities. Neither capital nor operating expenses of The Panama Canal include the cost of the military and naval establishments on the Isthmus; however, all important exchanges of services with these interests are covered by cash settlements, or reciprocal allowances.

By including in the accounts all revenues properly applicable to Canal activities and by charging against the total revenue the net appropriation expenses including charges for depreciation and interest at 3 percent on the capital invested by excluding any charge to amortize the investment, there has accumulated as of June 30, 1944, as shown by the above table, a deficit of \$88,457,408.25.

The total deposits covered into the United States Treasury from the beginning of Canal construction, with minor adjustments to reconcile changes in accounting process, amount to \$551,831,782.97, and deducting therefrom net appropriations for operation and incomplete construction amounting to \$267,630,518.93, as shown above produces the net capital refundment balance of \$284,201,264.04. Deposits covered into the Treasury consist principally of the earned revenues cited in table No. 21, which total \$543,459,821.83, the balance being made up of sales of property, principally during the construction period, and return of appropriation balances.

TABLE No. 22—*Capital refundments*

Balance June 30, 1943-----	\$243, 388, 284. 10
Cash covered into U. S. Treasury-----	7, 280, 387. 62
Business profits (table No. 8)-----	\$1, 455, 425. 77
Revenue due U. S. Treasury—(table No. 9)-----	5, 824, 961. 85
Total-----	250, 668, 671. 72
Appropriations-----	(20, 551, 672. 00)
Fiscal year 1943, supplemental, credited in July 1943-----	\$257, 800. 00
Fiscal year 1944 (detail below)-----	(20, 809, 472. 00)
Less: Net capital additions, current year (table No. 14)-----	12, 980, 920. 32
Net appropriation for operating account and incomplete construction-----	(33, 532, 592. 32)
Net capital refundments, June 30, 1944-----	284, 201, 264. 04

TABLE No. 22—*Capital refundments*—Continued  
SCHEDULE OF OPERATING APPROPRIATIONS <sup>1</sup>

Fiscal year	Maintenance and operation	Sanitation	Civil government	Construction additional facilities	Miscellaneous	Annual payment to Panama	Total
1914 to 1928	\$83,826,211.00	\$9,379,482.00	\$11,160,470.00	-----	<sup>2</sup> \$151,344.55	<sup>3</sup> \$2,000,000.00	\$106,517,507.55
1929	6,832,000.00	722,000.00	1,172,400.00	-----	-----	250,000.00	8,976,400.00
1930	8,000,000.00	820,000.00	1,201,000.00	-----	-----	250,000.00	10,271,000.00
1931	10,162,470.00	753,900.00	1,295,190.00	-----	-----	250,000.00	12,461,560.00
1932	9,359,808.00	782,189.00	1,351,689.00	-----	-----	250,000.00	11,743,686.00
1933	11,891,011.00	755,650.00	1,300,000.00	-----	-----	250,000.00	14,196,661.00
1934	11,172,700.00	698,426.00	1,235,278.00	-----	<sup>4</sup> 1,150,000.00	430,000.00	14,686,404.00
1935	4,971,490.00	768,501.00	1,732,935.00	-----	-----	430,000.00	6,962,926.00
1936	6,900,000.00	874,616.00	1,022,981.00	-----	-----	430,000.00	9,227,597.00
1937	9,143,201.00	899,793.00	1,073,950.00	-----	-----	430,000.00	11,552,944.00
1938	8,519,000.00	918,000.00	1,131,760.00	-----	<sup>5</sup> 5,000.00	430,000.00	11,003,760.00
1939	8,149,000.00	933,800.00	1,107,325.00	-----	<sup>6</sup> 155,000.00	430,000.00	10,835,125.00
1940	22,823,087.00	1,004,535.00	1,180,802.00	-----	<sup>7</sup> 36,307.87	430,000.00	25,474,731.87
1941	38,292,067.00	1,045,393.00	1,192,011.00	\$15,000,000.00	<sup>8</sup> 325,000.00	430,000.00	56,285,071.00
1942	29,595,286.00	1,635,223.00	1,295,017.00	34,932,000.00	-----	430,000.00	67,887,526.00
1943	40,152,437.00	1,692,800.00	1,609,373.00	56,826,800.00	<sup>9</sup> 277,000.00	430,000.00	100,988,410.00
1944	6,916,000.00	1,814,000.00	1,228,100.00	930,257,572.00	<sup>10</sup> (40,000.00)	430,000.00	20,809,472.00
Total	315,812,368.00	25,498,308.00	30,410,281.00	76,501,228.00	2,059,652.42	7,980,000.00	458,261,837.42
Less: Net capital additions, 1922 to 1944 (table No. 14)	-----	-----	-----	-----	-----	-----	190,631,318.49
Net appropriation for Canal maintenance and operation and incomplete construction	-----	-----	-----	-----	-----	-----	267,630,518.93

<sup>1</sup> Operating appropriations include authorization for capital construction.

<sup>2</sup> Appropriations for increase in compensation.

<sup>3</sup> Covers payments to Panama 1921 to 1928. Payments from 1913 to 1920 charged to cost of construction, \$2,000,000.

<sup>4</sup> N. R. A. \$1,000,000; repatriation of unemployed aliens, \$150,000.

<sup>5</sup> Appropriation for Memorial to Maj. Gen. George W. Goethals.

<sup>6</sup> Navy appropriation.

<sup>7</sup> Appropriation for construction of Trans-Isthmian Highway.

<sup>8</sup> Transfer from Public Works Administration, F. W. A., for recreational facilities; \$40,000 refunded.

<sup>9</sup> Refunded to the U. S. Treasury in accordance with proviso "That \$30,257,572.00 of the appropriation 'Construction, additional facilities, Panama Canal' is hereby repealed" (1945 Appropriation Act, Public Law 352, approved June 26, 1944).

Although above table shows a net cash refundment of \$284,201,-264.04, such refundment is not deductible from net capital investment as shown in table No. 14, which is considered as measuring the value of the Panama Canal as an instrument of public utility upon which a perpetual return should be earned; furthermore, annual interest on net asset valuation chargeable to operating account is not included in cash transactions with the United States Treasury. Such interest at 3 percent from 1921 to 1944 would have amounted to \$363,154,-976.17, as shown in table No. 21, and would have extinguished all capital refundments to date, if such interest charges had been assessed against Canal revenues.

TABLE NO. 23.—*Balance of revenues and refundments*

DEBITS	
Revenue due U. S. Treasury (table No. 9)-----	\$183, 016. 35
Appropriated cash in U. S. Treasury (table No. 8)-----	21, 788, 593. 51
Appropriated cash with fiscal officers (table No. 8)-----	11, 461, 826. 37
Accounts receivable (table No. 10)-----	4, 988, 049. 74
Stores (table No. 11)-----	10, 834, 535. 84
Work in progress (table No. 12)-----	1, 345, 858. 68
Deferred charges (table No. 13)-----	1, 937, 623. 43
Total debits-----	<u>52, 539, 503. 92</u>
CREDITS	
Accounts payable (table No. 15)-----	3, 813, 969. 21
Reserve for repairs (table No. 17)-----	445, 615. 64
Reserve for leave (table No. 18)-----	2, 858, 648. 84
Deferred credits (table No. 19)-----	4, 492, 760. 78
Total credits-----	<u>11, 610, 994. 47</u>
Net current accounts-----	40, 928, 509. 45
Less proportion under capital investment-----	<u>4, 695, 000. 00</u>
Balance-----	36, 233, 509. 45

A revolving fund now fixed at \$4,695,000 is set up in Canal accounting for working capital, and is credited to capital investment account in addition to funds used for construction and equipment, the total constituting the base for capital interest computations. Net working capital in excess of the revolving fund is considered as a temporary advance of Treasury funds, but is usually less than appropriated funds not withdrawn from the Treasury. Working capital investments are in constant process of accrual and liquidation for account of the United States Treasury.

Due to war emergency, the debit balances under working capital are abnormally large.



TABLE NO. 24.—*Canal revenues*

	Fiscal year 1944	Fiscal year 1943
Tolls.....	\$5, 473, 846. 30	\$7, 368, 680. 74
Postal surplus.....	43, 697. 46	(190, 801. 75)
Licenses, fees, fines, etc.....	190, 027. 60	201, 186. 63
Miscellaneous.....	5, 668. 25	459. 02
Total.....	5, 713, 239. 61	7, 379, 524. 64

( ) Denotes deficit.

Canal revenues shown above comprise earnings which by law must be covered into the United States Treasury as miscellaneous receipts, United States revenues, and relinquished from control of The Panama Canal, as distinguished from earnings repayable to Canal appropriations shown on tables Nos. 25 and 26.

TABLE NO. 25—*Canal earnings and expenses*

	Expenses	Earnings	Net expenses
Executive department:			
Executive offices.....	\$1, 349, 471. 65	\$841, 982. 65	\$507, 489. 00
Playgrounds.....	133, 658. 00		133, 658. 00
Total.....	1, 483, 129. 65	841, 982. 65	641, 147. 00
Accounting department:			
Comptroller's office.....	930, 126. 12	660, 564. 12	269, 562. 00
Paymaster's office.....	76, 670. 49	55, 200. 00	21, 470. 49
Collector's office.....	75, 829. 26	51, 174. 27	24, 654. 99
Total.....	1, 082, 625. 87	766, 938. 39	315, 687. 48
Washington office.....	700, 089. 44	389, 939. 44	310, 150. 00
Civil government:			
Civil affairs.....	21, 903. 63	3, 421. 09	18, 482. 54
Customs.....	150, 436. 99	51, 463. 51	98, 973. 48
License bureau.....	34, 216. 51	11, 420. 00	22, 796. 51
Division of schools.....	747, 392. 47	163, 087. 23	584, 305. 24
Fire protection.....	380, 114. 63	217, 522. 29	162, 592. 34
Police and prisons.....	1, 006, 755. 72	459, 150. 32	547, 605. 40
Magistrates' courts.....	25, 018. 93	2, 773. 00	22, 245. 93
District court.....	8, 943. 26		8, 943. 26
Total.....	2, 374, 782. 14	908, 837. 44	1, 465, 944. 70
Postal service.....	635, 721. 79	1 635, 721. 79	
Health department:			
Chief health office.....	111, 141. 75	19, 415. 29	91, 726. 46
Gorgas Hospital.....	2, 037, 796. 55	1, 302, 831. 11	734, 965. 44
Colon Hospital.....	447, 447. 29	226, 270. 12	221, 177. 17
Corozal Hospital.....	238, 142. 22	59, 909. 81	178, 232. 41
Margarita Hospital.....	178, 715. 47	81, 665. 58	97, 049. 89
Palo Seco Colony.....	56, 981. 87	28, 168. 25	28, 813. 62
Line dispensaries.....	215, 277. 79	117, 666. 15	97, 611. 64
Quarantine service.....	143, 618. 11	85, 523. 43	58, 094. 68
Sanitation:			
Panama.....	71, 400. 49	1, 393. 08	70, 007. 41
Colon.....	25, 410. 90	6, 713. 11	18, 697. 79
Zone.....	404, 133. 12	287, 131. 44	117, 001. 68
Street cleaning and garbage collection:			
Panama.....	289, 268. 24	216, 951. 18	72, 317. 06
Colon.....	113, 219. 06	84, 914. 31	28, 304. 75
Total.....	4, 332, 552. 86	2, 518, 552. 86	1, 814, 000. 00
Technical divisions:			
Office engineer.....	876, 441. 48	769, 064. 42	107, 377. 06
Meteorology and hydrography.....	48, 248. 98	6, 360. 98	41, 884. 00
Total.....	924, 726. 46	775, 365. 40	149, 361. 06

See footnotes at end of table.

TABLE No. 25—*Canal earnings and expenses*—Continued

	Expenses	Earnings	Net expenses
Public buildings and grounds:			
Chief quartermaster's office.....	\$94,731.05	\$91,941.61	\$2,789.44
District quartermaster:			
Balboa.....	403,278.44	180,759.50	222,518.94
Pedro Miguel.....	38,316.99	18,397.84	19,919.15
Gamboa.....	46,688.64	23,194.08	23,494.56
Cocoli.....	37,819.95	27,145.21	10,674.74
Gatun.....	55,652.04	43,214.83	12,437.21
Cristobal.....	148,250.23	103,132.68	45,117.55
Total.....	824,737.34	487,785.75	336,951.59
Marine division:			
Marine superintendent.....	52,550.88	1,411.90	51,138.98
Port captain, Balboa:			
General.....	246,433.53	44,250.59	202,142.94
Admeasurement of vessels.....	26,850.44		26,850.44
Pilotage.....	221,224.98	152,516.85	68,708.13
Handling lines.....	79,627.99	74,914.22	4,713.77
Tugs.....	309,704.88	377,545.45	(67,840.57)
Launches.....	160,736.08	169,343.00	(8,606.92)
Port captain, Cristobal:			
General.....	124,408.70	335.10	124,073.60
Admeasurement of vessels.....	36,972.72		36,972.72
Pilotage.....	232,166.01	148,194.18	83,971.83
Handling lines.....	100,134.19	94,420.60	5,713.59
Tugs.....	284,656.88	242,339.26	42,317.62
Launches.....	133,623.30	105,939.00	27,684.30
Aids to navigation.....	439,431.05	105,264.35	334,166.70
Total.....	2,448,501.63	1,516,514.50	931,987.13
Locks operation and maintenance:			
Pacific locks:			
Miraflores locks.....	593,937.69		593,937.69
Pedro Miguel locks.....	513,229.21		513,229.21
Quadrennial overhaul.....	340,661.98		340,661.98
Total.....	1,447,828.88		1,447,828.88
Atlantic locks:			
Gatun locks.....	695,670.31		695,670.31
Quadrennial overhaul.....	64,564.05		64,564.05
Total.....	760,234.36		760,234.36
Total.....	2,208,063.24		2,208,063.24
Dams and spillways:			
Gatun Dam.....	27,442.17		27,442.17
Gatun spillway.....	4,948.87		4,948.87
Madden Dam.....	33,303.90		33,303.90
Total.....	65,694.94		65,694.94
Dredging division:			
Atlantic breakwater.....	60,749.70		60,749.70
Atlantic entrance.....	155,568.75		155,568.75
Gatun Lake.....	2,376.22		2,376.22
Gaillard cut.....	1,230,826.44		1,230,826.44
Miraflores Lake.....	963.51		963.51
Pacific entrance.....	294,647.48		294,647.48
Cristobal Harbor.....	99,086.69		99,086.69
Balboa Harbor.....	105,991.82		105,991.82
Removal of floating obstructions.....	57,452.17		57,452.17
Maintenance of floating cranes.....	86,552.48		86,552.48
Reserve plant.....	55,740.34		55,740.34
Dredging division work.....	4,306,520.60	4,526,960.78	(220,440.18)
Total.....	6,456,476.20	4,526,960.78	1,929,515.42
Experimental gardens.....	341,510.18	323,155.08	18,355.10
Municipal expenses:			
Street lighting.....	17,701.92		17,701.92
Water for municipal purposes.....	23,400.00		23,400.00
Roads, streets, and sidewalks.....	186,090.69		186,090.69

See footnotes at end of table.

TABLE No. 25—*Canal earnings and expenses*—Continued

	Expenses	Earnings	Net expenses
Municipal expenses—Continued			
Sewer system.....	\$13,909.31	-----	\$13,909.31
Thatcher Ferry.....	306,041.45	-----	306,041.45
Total.....	547,143.37	-----	547,143.37
Miscellaneous general expenses:			
Recruiting and repatriating employees.....	15,598.87	-----	15,598.87
Repatriating alien ex-employees.....	4,483.67	-----	4,483.67
Transportation on the Isthmus.....	143,507.80	-----	143,507.80
Damage to vessels.....	11,682.17	-----	11,682.17
Depreciation on Canal general property.....	1,200,000.00	-----	1,200,000.00
Annual payment to Republic of Panama.....	430,000.00	-----	430,000.00
Cash relief to alien ex-employees.....	94,890.88	-----	94,890.88
Net Canal expenses.....	26,325,918.50	\$13,691,754.08	12,634,164.42
SUMMARY			
Canal revenues (table No. 24).....	-----	-----	\$5,713,239.61
Net Canal expenses.....	-----	-----	12,634,164.42
Net Canal expenses.....	-----	-----	6,920,924.81

( ) Denotes credit balance.

<sup>1</sup> After transfer of \$43,697.46 to surplus account and included on table No. 20.

The earnings of the divisions engaged in the transiting of vessels through the Canal, as well as earnings of sanitation and civil government divisions, are deducted from gross expenses to arrive at the net expenditure from Canal appropriations, which in turn is deducted from Canal revenues to arrive at net Canal revenues, exclusive of business division profits.

Earnings of the executive offices and accounting department represent principally a proportional charge against business divisions of The Panama Canal and the Panama Railroad Co. Business divisions are reimbursed for this proportional expense by adding a surcharge to the direct cost on all work performed. The Panama Railroad's proportion is distributed to the various units of that organization.

The earnings of the Washington office comprise charges against business storehouses operations to cover a proportional part of the cost of purchasing, inspection, and handling of material used by business divisions or sold to outside interests, which expense is covered through surcharges added to the price of material.

TABLE NO. 26.—*Business expenses, revenues, and profit or loss*

	Expenses	Revenues	Profit or Loss
Electric power system.....	\$1,039,388.14	\$1,651,383.31	\$611,995.17
Electric work.....	2,863,306.25	2,878,855.45	15,549.20
Telephone, telegraph, and signal work.....	266,423.94	266,423.94	-----
Water system.....	810,961.62	1,019,888.70	208,927.08
Municipal work.....	7,037,743.88	7,052,591.64	14,847.76
Shops and dry docks.....	17,062,175.35	17,169,502.81	107,327.46
Wharfage (P. R. R. rental).....	35,642.17	84,000.00	48,357.83
Rental, Hotel Tivoli (P. R. R. Co.).....	-----	3,000.00	3,000.00
Fuel-oil plants.....	1,179,789.26	1,548,701.49	368,912.23
General storehouses.....	16,997,995.15	17,040,251.71	42,256.56
Motor transportation.....	2,114,075.50	2,130,227.61	16,152.11
Motor car repair shops.....	837,200.37	878,128.54	40,928.17
Building division.....	5,889,601.82	5,905,697.41	16,095.59
Panama Canal Press.....	486,730.19	492,781.83	6,051.64
Gold quarters.....	1,151,286.18	1,155,313.69	4,027.51
Silver quarters.....	530,149.10	530,149.10	-----
Subsistence section.....	906,148.79	906,148.79	-----
District quartermasters' supplies.....	435,836.38	436,624.07	787.69
Sand and gravel operations.....	233,068.93	240,576.75	7,507.82
Public works:			
Panama.....	641,339.41	666,225.00	24,885.59
Colon.....	344,207.75	359,892.40	15,684.65
Total.....	60,863,070.18	62,416,364.24	1,553,294.06

The profit on business operations as above, amounting to \$1,553,294.06 compares with profits in 1943 of \$1,492,542.70.

Profits on public works, Panama and Colon, amounting to \$40,570.24 represent interest which has been currently reported for coverage into general funds of the United States Treasury. The balance of the total profits, amounting to \$1,512,723.82 will be immediately covered into the Treasury as miscellaneous receipts, United States revenues, in accordance with regulations.

Business operations of The Panama Canal are conducted separately from operating activities pertaining directly to the transiting of vessels, and government of the Canal Zone. The annual appropriation acts for The Panama Canal authorize the use of appropriated funds for the conduct of auxiliary business activities, provided that funds so advanced are recovered through earnings, and with further proviso that any net profit derived from such business activities be covered annually into the United States Treasury.



TABLE No. 27.—*Balances in appropriations and funds, June 30, 1944*

ASSETS							Total
U. S. Treas- ury appropri- ations	Cash on hand	Accounts receivable	Transfers available	Work in progress and suspense	Storehouse stock		
Maintenance and operation, Panama Canal.....	\$9,458,968.60	\$4,724,317.32	\$661,874.23	-----	\$10,372,814.00	\$42,943,060.72	
Sanitation, Canal Zone, Panama Canal.....	345,754.65	178,693.26	42,195.24	-----	455,478.75	1,023,245.74	
Civil government, Panama Canal and Canal Zone.....	159,333.33	10,005.32	42,059.19	-----	6,243.09	222,377.97	
Postal funds, Canal Zone (special fund).....	141,066.79	4,301.14	-----	-----	-----	275,088.66	
Repatriation of unemployed aliens, Panama Canal.....	80,000.00	-----	-----	-----	-----	85,552.73	
Memorial to Maj. Gen. George W. Goethals.....	156,508.58	-----	-----	\$3,491.42	-----	160,000.00	
Construction, additional facilities, Panama Canal.....	3,280,070.69	70,732.70	-----	-----	-----	4,299,709.05	
Working funds, Panama Canal:							
Access roads projects.....	-----	-----	-----	-----	-----	454,808.59	
Hospitalization of military personnel.....	300,000.00	-----	-----	-----	-----	123,864.00	
Transfer from defense public works, FWA—Community facilities.....	100,000.00	-----	-----	29,646.81	-----	264,564.95	
Miscellaneous receipts, United States revenues.....	-----	142,953.00	1,512,723.82	-----	-----	1,695,740.17	
Total.....	21,788,593.51	5,131,002.74	2,258,852.48	33,138.23	10,834,535.84	51,548,012.52	
LIABILITIES							Total
Working capital allotment	Accounts payable	Transfers payable	Special liabilities	Funded reserves	Balance		
Maintenance and operation, Panama Canal.....	\$3,206,715.16	\$1,512,723.82	\$458,529.80	\$9,950,769.91	\$23,804,322.03	\$42,943,060.72	
Sanitation, Canal Zone, Panama Canal.....	284,535.70	-----	63,710.04	-----	-----	1,023,245.74	
Civil government, Panama Canal and Canal Zone.....	159,070.29	-----	53,307.68	-----	-----	222,377.97	
Postal funds, Canal Zone (special fund).....	29,846.29	7,883.22	180,230.80	-----	57,128.29	275,088.60	
Repatriation of unemployed aliens, Panama Canal.....	-----	3.70	-----	-----	85,549.03	85,552.73	
Memorial to Maj. Gen. George W. Goethals.....	-----	-----	-----	-----	160,000.00	160,000.00	
Construction, additional facilities, Panama Canal.....	121,666.15	460,091.59	170,686.81	-----	3,547,264.50	4,299,709.05	
Working funds, Panama Canal:							
Access roads projects.....	-----	-----	-----	-----	-----	454,808.59	
Hospitalization of military personnel.....	-----	187,672.82	267,135.77	-----	-----	123,864.00	
Transfer from defense public works, FWA—Community facilities.....	-----	75,048.00	48,816.00	-----	-----	264,564.95	
Miscellaneous receipts, United States revenues.....	4,695,000.00	15,429.33	-----	-----	237,000.00	1,695,740.17	
Total.....	5,509,709.38	2,258,852.48	1,242,416.90	9,950,769.91	27,891,263.85	51,548,012.52	

This table shows the status of Panama Canal working capital by the various appropriations and funds by which it is separately accountable under existing laws and Treasury regulations.

A revolving fund of \$4,695,000 is set aside in Canal accounting to cover the net investment in current accounts, which sum is included in the capital investment account (table No. 14).

The following table shows the detail of the funded reserves stated in the foregoing table as \$9,950,769.91.

TABLE NO. 28.—*Funded reserves, fiscal year 1944*

	Balance July 1, 1943	Accruals	Expendi- tures	Balance June 30, 1944
Marine division:				
Tugs	\$178,613.93	\$39,250.00		\$186,016.95
<i>Aihajuela</i> , reconstruct			\$31,846.98	
Launches	2,813.45	36,884.64		32,630.35
<i>Toucan II</i>			1,646.65	
<i>Frigate</i>			3,486.23	
<i>Skate</i>			1,934.86	
Machine barges	12,910.91	116.00		13,026.91
Launch repair barges	696.00	1,392.00		2,088.00
Total	195,034.29	77,642.64	38,914.72	233,762.21
Dredging division:				
Tugs and crane boats	<sup>1</sup> 373,368.49	49,795.00		423,163.49
Launches	44,985.61	22,489.00		67,474.61
Dredges	609,370.00	83,790.00		693,160.00
Dump scows	323,279.58	43,140.00		366,419.58
Machine barges	<sup>2</sup> (96,571.35)	54,804.00		<sup>2</sup> (41,767.35)
Lighters	<sup>2</sup> (20,468.60)	18,078.00		<sup>2</sup> (2,390.60)
Anchor barges		1,170.00		1,170.00
Total	1,233,963.73	273,266.00		1,507,229.73
Total, transit divisions	1,428,998.02	350,908.64	38,914.72	1,740,991.94
Electric power system:				
Hydroelectric plant, Gatun	289,781.95	32,520.00		322,301.95
Diesel electric plant, Miraflores	465,361.32	46,824.00		512,185.32
Substations	<sup>1</sup> 229,453.98	36,109.32		265,563.30
Transmission system	185,838.27	23,520.00		209,358.27
Madden Dam system	154,849.37	31,260.00		186,109.37
Electric ranges	151,425.80	18,972.00		170,397.80
Total	1,476,710.69	189,205.32		1,665,916.01
Electric work:				
Fixed property	42,565.68	7,797.36		50,363.04
Equipment	6,286.15	264.00		6,550.15
Total	48,851.83	8,061.36		56,913.19
Water system:				
Pump station buildings	<sup>2</sup> (19,151.47)	6,112.00		<sup>2</sup> (13,039.47)
Pump stations machinery	20,673.71	30,509.00		51,182.71
Filter plant buildings	164,399.73	25,548.00		189,947.73
Filter plant machinery	57,981.73	12,484.00		70,465.73
Reservoirs and tanks	129,923.80	12,252.00		142,175.80
Pipe lines—Large mains	193,290.93	24,960.00		183,686.97
Balboa			34,563.96	
Pipe lines—Distribution	35,116.12	35,856.00		<sup>2</sup> (6,411.29)
Ancon			60,325.24	
Balboa			17,058.17	
Total	582,234.55	147,721.00	111,947.37	618,008.18
Municipal work:				
Fixed property	12,660.10	2,886.00		15,546.10
Equipment	85,276.82	57,800.89	15,951.73	127,125.98
Total	97,936.92	60,686.89	15,951.73	142,672.08

See footnotes at end of table.

TABLE No. 28.—*Funded reserves, fiscal year 1944*—Continued

	Balance July 1, 1943	Aceruals	Expendi- tures	Balance June 30, 1944
Mechanical shops:				
Balboa shops	\$238,704.05	\$43,772.38		\$279,930.04
Bldg. No. 26-X, ice house			\$2,546.39	
Balboa railroad shops	47,125.29	6,094.20		53,219.49
Cristobal shops	84,281.69	13,347.00		97,628.69
Equipment:				
Balboa	200,811.28	173,093.01	90,550.33	283,353.96
Cristobal	129,120.98	65,279.73	14,198.95	180,201.76
Total	700,043.29	301,586.32	107,295.67	894,333.94
Fuel-oil plants:				
Balboa:				
Pumping plant	43,561.69	4,293.84		47,855.53
Storage tanks	<sup>1</sup> 80,664.35	9,042.90		89,707.25
Pipe lines	130,772.73	17,037.48		147,810.21
Dock No. 4	13,200.00	3,300.00		16,500.00
Cristobal:				
Pumping plant	43,737.35	4,317.72		48,055.07
Storage tanks	<sup>1</sup> 45,897.93	10,735.34		56,633.27
Pipe lines	251,497.81	24,792.00		276,289.81
Total	609,331.86	73,519.28		682,851.14
General storehouses:				
Fixed property	166,638.69	46,241.00		212,879.69
Equipment	6,464.96	9,100.16		15,565.12
Total	173,103.65	55,341.16		228,444.81
Motor transportation division:				
Fixed property	38,720.26	5,478.00		12,235.51
Garage, Gatun			31,962.75	
Motor vehicles	28,718.17	190,596.22	84,970.94	134,343.45
Total	67,438.43	196,074.22	116,933.69	146,578.96
Motor car repair shops:				
Fixed property	29,477.33	4,356.00		33,833.33
Equipment	18,469.86	2,604.89	3,142.13	17,932.62
Total	47,947.19	6,960.89	3,142.13	51,765.95
Building division:				
Fixed property	11,748.06	1,679.00		13,427.06
Equipment	11,321.95	12,097.88	9,557.11	13,862.72
Total	23,070.01	13,776.88	9,557.11	27,289.78
Panama Canal Press: Equipment	17,530.90	7,454.16	5,367.40	19,617.66
Gold quarters:				
Fixed property	185,656.19	319,917.93		494,641.47
New quarters:				
Balboa			<sup>3</sup> (7,556.09)	
Aneon			<sup>3</sup> (13,178.33)	
Corozal			<sup>3</sup> (42,564.68)	
Margarita			<sup>3</sup> (12,025.87)	
Alterations and improvements			47,619.12	
Furniture			38,638.50	
Total	185,656.19	319,917.93	10,932.65	494,641.47
Silver quarters: Fixed property	3,611.99			3,611.99
District quartermasters' supplies:				
Gasoline stations	18,210.45	2,189.25		20,399.70
Equipment	15,212.50	60.00		15,272.50
Total	33,422.95	2,249.25		35,672.20
Clubhouse business structures: Fixed property	69,364.67	17,831.46		87,196.13
Total, business divisions	4,136,255.12	1,400,386.12	381,127.75	5,155,513.49
Total, reserve for replacements	5,565,253.14	1,751,294.76	420,042.47	6,896,505.43
Total, reserve for repairs (table No. 17)	<sup>1</sup> 484,724.69	829,188.68	868,297.73	445,615.64
Total, reserve for leave <sup>4</sup> (table No. 18)	2,613,790.28	1,517,262.08	1,522,403.52	2,608,648.84
Total, funded reserves (table No. 27)	8,663,768.11	4,097,745.52	2,810,743.72	9,950,769.91

<sup>1</sup> Revised balance.<sup>2</sup> Credit balance.<sup>3</sup> Credit adjustment.<sup>4</sup> Less \$250,000.

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